CITY COUNCIL OF SINGAPORE

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ANNUAL REPORT OF THE
HEALTH DEPARTMENT
1957

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HEALTH DEPARTMENT
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BY

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City Health Officer

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CITY HEALTH DEPARTMENT

I HAVE THE HONOUR to submit a report on the working of the City Health Department for the year 1957.

This report and its appendices, unless otherwise stated, are uncorrected for inward and outward transfers. Patients from outside the town enter hospitals and other institutions within the town and adversely affect the Death and Infectious Diseases Rates. The age and sex distribution of the population are not comparable with other cities. As over 20 per cent of persons who die in Singapore have not been in receipt of medical attention the causes of death have had to be surmised by Inspecting Officers without the aid of clinical examination or autopsies. The number of deaths shown as due to the various diseases must necessarily be inaccurate.

MID-YEAR POPULATION

A census was carried out in June 1957, but at the time of writing figures for the populations by races are not yet available and are unlikely to be available for some months. Although the final counting has not been completed, a provisional figure for the total of all races of 922,764 for the City area has been supplied by the Department of Statistics, and this figure has been used for the various tables in this report. It is subject to amendment when the final counting has been completed but is probably more realistic than an estimated mid-year population would be.

PROVISIONAL TOTAL POPULATION FOR ALL RACES—922,764 CITY AREA

Details concerning notifiable infectious diseases, vital statistics, etc., and the work carried out by the various sub-departments are set out in appendices as follows:—

A—Notifiable Infectious Diseases.

B—General Measures to combat spread of Infectious Diseases.

C—Birth and Still-Birth Statistics.

D—General Death Rate, Infant Mortality Rate, Neo-Natal Rates, etc., Principal Causes of Death, Death by whom certified.

E—Food Licences Issued; Abattoirs; Burial Grounds; and reports and returns from:—

(1) Officer in charge of Anti-Mosquito Department.
(2) Analyst.
(3) Bacteriologist.
(4) Senior Assistant Health Officer, Infant Welfare Department.
(5) Superintendent, Middleton Hospital.
(6) Superintendent of Abattoirs.
(7) Chief Public Health Inspector.
(8) Medical Officer in charge of Staff.
(9) Rodent Overseer.
(10) Infectious Diseases Nurse.
(11) Welfare Officer.

SUMMARY OF PRINCIPAL STATISTICS, 1957

BIRTHS AND DEATHS, ETC.—ALL RACES COMBINED

Total births registered	46,503
Total deaths registered	8,405
Excess of births over deaths	38,098
Birth Rate	50.40
Death Rate	9.11
Malarial Death Rate	0.009
Infantile Mortality Rate	42.94
Neonatal Death Rate	19.85
Still Birth Rate per 1,000 live and Still birth ..	17.07
Maternal Mortality Rate per 1,000 Live Births ..	0.90

DEATHS—BY WHOM CERTIFIED

	1956 *Per cent*	1957 *Per cent*
Medical Practitioners	65.17	63.70
Inspecting Officers	21.09	20.70
Coroner	13.74	15.60

NOTIFIABLE INFECTIOUS DISEASES IN 1957

	Cases Notified		*Deaths*
Tuberculosis (all forms) ..	3,032	(including 473 non-residents)	650
Typhoid	130	(including 45 non-residents)	5
Paratyphoid	1	(including — non-residents)	1
Diphtheria	740	(including 164 non-residents)	63
Leprosy	115	(including 27 non-residents)	3
Poliomyelitis	67	(including 26 non-residents)	6
Erysipelas	5	(including 1 non-residents)	1
Chicken Pox	1,278	(including 298 non-residents)	—
Small-pox, Cholera and Plague	—	(including — non-residents)	—

DEATHS CERTIFIED AS DUE TO SOME OF THE NON-NOTIFIABLE INFECTIOUS AND PARASITIC DISEASES IN 1957

	1956	1957
Dysentery—Bacillary	3	5
Unspecified	4	6
Amœbic	12	10
Malaria	6	9
Influenza	24	73
Whooping Cough and Complications ..	8	5
Measles and Complications	18	3
Leptospirosis interhæmorrhagica (Weil's Disease)	—	1
Tetanus	31	21

NON-NOTIFIABLE INFECTIOUS DISEASES TREATED AT THE MIDDLETON HOSPITAL

	1956	1957
Measles and Rubella	387	189
Whooping Cough	85	30
Amœbic Dysentery	126	197
Bacillary Dysentery	26	74
Clinical Dysentery	63	150
Mumps	52	14

VACCINATION

	1956	1957
Age Group (0–1)	32,253	33,361
Age Group (1–5)	1,558	1,766
Age Group (5 and over)	120	221
Total vaccinated and revaccinated	33,931	35,348

MATERNITY AND INFANT WELFARE DEPARTMENT HOME VISITS BY SISTERS AND HEALTH VISITORS

	1956	1957
Mothers visited by District Sisters within 10 days of confinement	18,763	18,237
Subsequent visits by District Sisters to Mothers	3,457	3,172
First visits by Health Visitors to new babies	29,516	30,939
Subsequent visits by Health Visitors to new babies	62,242	61,091
Visits to expectant mothers	9,346	8,724
Visits made in connection with Anti-Diphtheria Immunisation	5,561	5,696
Total visits to homes by Sisters and Health Visitors	128,885	127,859

ATTENDANCES AT CLINICS

	1956	1957
Infants (0–1)		
1st attendances	23,168	28,300
Subsequent attendances	157,705	185,460
Total attendances	180,873	213,760
Preschool Children		
1st attendances	17,193	43,915
Subsequent attendances	13,105	38,489
Total attendances	30,298	82,404
Expectant mothers		
1st attendances	4,952	5,278
Subsequent attendances	13,329	14,078
Total attendances	18,281	19,356

DIPHTHERIA IMMUNISATION—COMPLETE COURSES

	1956	1957
Infants (0–1)	8,186	8,549
Preschool children (1–5)	10,790	20,748
Older children (5–10)	350	1,569

In addition 4,932 children were immunised against whooping cough as well as diphtheria and 9,776 boosting doses were given of A.P.T. making a total of 45,574.

COUNCIL FREE MIDWIFERY SERVICE

	1956	1957
Confinements attended by Council Midwives	1,371	1,305
Visits paid to cases discharged from Government Maternity Hospital three days or so after confinement	6,009	12,597
Visits subsequently paid to known cases of confinement not attended by Doctors or Midwives	164	116

CONDUCTION OF CONFINEMENTS

	1956	1957
Government Maternity Hospital	25,112	29,299
Private Maternity Homes and by Private Doctors . .	3,438	3,576
Private Midwives	14,876	14,566
Council Midwives	1,371	1,305
No skilled attention at confinement	852	628
Total . .	45,649	49,374

HEALTH OF CITY COUNCIL STAFF

(EXCLUDING SENIOR OFFICERS AS THESE ARE TREATED BY PRIVATE DOCTORS)

AVERAGE STRENGTH OF JUNIOR AND SUBORDINATE STAFF AND DAILY RATED EMPLOYEES DURING 1957

Approximate number of Junior and Subordinate Staff stationed in Singapore including temporary staff paid out of 'Extra Clerical and Technical Assistance' Votes, and also including females. Figure supplied by Assistant Secretary (Establishment) . .	3,633
Approximate number of Daily Rated Employees stationed in Singapore including females and young persons. Figure obtained from Establishment Officer (Labour)	9,570

——	Staff (*a*)	Daily Rated Employees (*b*)	Total (*a*) and (*b*)
New cases attended at dispensaries (including accidents)	11,094	39,746	50,940
Total attendances including first visits at dispensaries	24,407	92,806	117,213
Examination for physical fitness	1,123	789	1,912
Visits paid to homes by M.O. i/c. Staff . .	148	90	238
Cases treated by Private Doctors	2,195	13,732	15,927
Days sick leave granted (excluding leave under Workmen's Compensation Ordinance) including leave on account of Tuberculosis by:—			
(*a*) M.Os. i/c. Staff	15,280	61,465	76,745
(*b*) Private Practitioners	5,968	33,131	39,099
(*c*) Hospitals	7,574	25,197	32,771
Total . .	28,822	119,793	148,615
Leave granted under Workmen's Compensation Ordinance	452	14,064	14,516
Days leave granted on account of Tuberculosis . .	2,129	5,414	7,543
Average number of days sick leave, excluding leave under Workmen's Compensation Ordinance including tuberculosis leave granted per person employed in Junior, Subordinate and Daily Rated Employees and Temporary Staff in 1957	7.93	12.52	11.26

All Junior Officers have now been placed on the Medical Record Card System and thi has been of considerable value.

BIRTH RATE

In 1955 the birth rate was 48.86. In 1956 it was 49.11. In 1957 it reached the all-time record of 50.40 as compared with 16.1 in England in 1957 which figure was the highest for England since 1949.

This problem of the rising birth rate is not being given the serious consideration it merits. Birth control is a practice as worthy and as reputable as malaria control. It is a prophylactic measure designed to improve the public health in exactly the same sense as any other prophylactic measure, such as vaccination against small-pox. Yet, while malaria control and vaccination are carried out in Singapore with vigour and determination, resulting in a considerable measure of success, work on birth control is left to a small band of enthusiastic realists and to a voluntary society which receives a grant.

The vital relationship between family planning and national and individual well-being has been clearly expressed by world leaders, particularly in those countries which are experiencing explosive population growth, as we are in Singapore. During 1957 two Asian leaders spoke on this subject as follows:—

> 'For us, in India, it is of the utmost importance.............. that we should make this movement for population control by family planning a widespread and successful one.
>
> JAWAHARLAL NEHRU,
> *Prime Minister of India*, 1957.'

> 'For the protection of women and children, for the up-bringing and education of the rising generation, for the health and prosperity of the nation, we are in favour of the appropriate regulation of reproduction. We entrust the Ministry of Health with the task of working out an effective programme of birth control.
>
> CHO EN LAI,
> *Premier of China*, 1957.'

These remarks are equally applicable to Singapore where the population problem is rapidly becoming equally serious and is not being tackled realistically.

DEATH AND INFANT MORTALITY RATES

Last year these rates were the lowest ever recorded. There is a slight increase in the crude death rate for 1957 but the Infant Mortality Rate is again reduced to a new low record. The rates for the past 4 years are:—

	1954	1955	1956	1957
Crude Death Rate	10.08	9.56	8.84	9.11
Infantile Mortality Rate ..	59.66	51.60	44.02	42.94

The population of Singapore has an abnormally high proportion of young people. The main cause of death was again bronchitis and pneumonia.

Suicides cause 139 deaths in 1957 of which 70 were due to hanging. The second most common method of committing suicide was by drinking solutions of caustic soda. Seventeen suicide cases died from jumping off high building, eight from drowning and three from shooting.

No attempt has yet been made on an analysis of mortality in Singapore in different occupations.

During 1957, 1,856 deaths were certified by Inspecting Officers of this department, as the patients had not been seen by a doctor before death. It was found necessary to refer 22 of these cases to the coroner.

MIDDLETON HOSPITAL FOR INFECTIOUS DISEASES

The Cubicle Ward which was taken into use in 1956 has been of great assistance, and from the experience gained it is considered that a second cubicle ward is very desirable.

During the year the reconstruction of an old ward was completed (*H* Ward), and this 30 bedded ward is now in use. Alterations to *K* and *E* Wards were also carried out.

It is not yet known whether Government will take over this hospital or not, and this indecision has had an adverse effect on the planning of staff accommodation.

The hospital continues to be used as the teaching hospital for infectious diseases for the University of Malaya.

TYPHOID

There is a slight increase in the number of typhoid cases over the previous year and there is some reason to believe that the notification of this disease is not as reliable as it should be, as the use of chloramphenicol has completely altered the clinical picture of typhoid. From the increasing number of late complications of typhoid seen it may well be that the real increase is greater than the slight statistical increase indicates. Public Health Inspectors and Health Visitors now stress the importance of clean food and personal hygiene whenever possible in their contacts with the public. (It will be seen, also, that the non-notifiable infectious disease of the bowel treated in Middleton Hospital, most of which are probably due to contaminated food, also show a sharp increase in incidence. This is connected with the problem of the food hawker).

DIPHTHERIA

The incidence of this preventable disease continues to increase and in 1957 the increase was very serious. The ten year figures of admission from diphtheria in the Acting Medical Superintendent's report on the working of Middleton Hospital indicate the complete failure of persuasion as a means of ensuring immunisation of at least 70 per cent of the children under 1 year. When mothers of patients are asked why they did not accept the free immunisation offered in all the Maternity and Child Welfare Centres and by the Mobile Team operating in Community Centres and Kindergarten Schools, they occasionally ask, in reply, why prophylactic immunisation, if it is so effective and not dangerous, is not made compulsory, like vaccination against small-pox? Compulsion in such matters is, in general, repugnant, but the element of fatalism exists to a much higher degree in Singapore than it does in countries where voluntary prophylactic immunisation has already greatly reduced or even abolished diphtheria, and this apathetic attitude must not be overlooked in considering the desirability of enforcing diphtheria immunisation by law. Compulsory immunisation against diphtheria in Singapore would save lives and money and would also prevent much suffering.

During 1957, 8,549 children under one year were fully immunised against diphtheria by this department, but this will have no appreciable effect on the increasing incidence of the disease, as it represents only 18.59 per cent of the 45,998 babies born in the previous year.

In addition, the Maternity and Child Welfare Department fully immunised 20,748 children in the 1–10 age group as against only 10,790 in this age group in the previous year, and 1,569 contacts over the age of 10 as compared with only 350 in the previous year.

The presence of the epidemic also stimulated approximately 10,000 eviously immunised children to return for booster doses, compared with ly 1,677 similar patients in 1956.

POLIOMYELITIS

Poliomyelitis continued as an endemic disease and there was no particular ason or epidemic in 1957 when there were 67 cases with six deaths. Work the polio virus at present being carried out by the Department of Bac- iology of the University of Malaya is referred to by the Acting Medical perintendent of Middleton Hospital in an appendix to this report.

ASIAN INFLUENZA

Daily rated labourers do not normally report sick on public holidays, t 1st May, 1957, was an exception. It marked the sudden onset of the idemic of 'Singapore flu' which later became known internationally as sian influenza'. The cases seen among our employees were very similar those described by Lim, Smith, Hale and Glass in *The Lancet* of 19th tober, 1957.

During the epidemic the average attendance at each of the three dis- nsaries rose to about 750 per day of whom over 500 were influenza cases. is is about three times the normal number of patients attending the spensaries, and the dispensary staff worked long hours to attend to the owds although some of the staff were themselves affected by the virus.

MALARIA

There was a very slight increase in the recorded death rate from malaria, om .007 per 1,000 to .009 per 1,000. Only 18 cases were notified by hos- als, of which 13 gave addresses within the city. On investigation all (except e who could not be traced) were found to be imported from either the ighbouring islands, the Federation of Malaya, Indonesia, Borneo, India, d even one from West Africa.

Singapore may be regarded as free from malaria but this state of affairs achieved only by constant unremitting vigilance and prompt effective tion. The fact that epidemics of malaria occur in all surrounding territories th similar flora and fauna makes it essential to maintain this high standard control which costs only about $1.25 a year per head of population at risk. e most important factor in maintaining the present low rate is an adequate iable supervisory staff with a thorough knowledge of the principles of laria control and the terrain under control.

Despite the low incidence of malaria, and the fairly effective control of ctor species of malaria, there has been a marked increase in the number complaints received of nuisance mosquitoes breeding in building excava- ns, badly graded drains, neglected compounds, etc., and much of the cost oiling is due to the control of mosquitoes which are not malaria vectors.

ANALYST DEPARTMENT

The City Analyst's Report shows a record amount of work carried out ring the year.

All the water of the Singapore water supply now receives full chemical atment, and routine daily analyses were done on samples taken from all ges of treatment and distribution. The treated water possesses exceptional rity and the consistent good quality of the supply is borne out by the t that very few 'complaint' samples were received during the year.

The number of samples examined in connection with the Sale of Foo and Drugs Ordinance increased by some 60 per cent. These samples wer analysed to see if they were wholesome and to detect any likely adulteratio Imported fresh fruits were still occasionally found to contain harmful amoun of arsenical spray residues.

FLUORIDATION

During 1957 fluoridation of the water supply, which had started in 195 was completed, so that now the whole water supply contains 0.7 parts p million of fluorine. This is checked daily by sampling from different poin in the distribution network. The full effect of this will not be seen for sever years but it is hoped that it will reduce the incidence of dental caries i young children by half.

PUBLIC HEALTH DENTISTRY

We opened our first dental clinic in a Maternity and Child Welfar Clinic in conjunction with the Government Medical Services, during the yea and it is hoped to extend this service not only in our other Maternity an Child Welfare Centres, but also to the lower paid sections of the Staff an later perhaps to the poorer sections of the general public.

FOOD AND DRUGS EXAMINATION

The new Food and Drugs Regulations, 1957 came into force on 16t October, 1957, and the City Council decided to apply, as from 1st Januar 1958, a part of these new Regulations known as 'Part VI The Preparatio and Storage of Food Generally' to the City Area.

This is more extensive than the previous 'Food Bylaws' made under th Municipal Ordinance, and places more responsibility on the Local Authorit at the same time giving it wider powers in connection with food factorie and premises in which food for human consumption is stored.

The Food and Drugs Department was created in 1951 and its efforts hav gradually improved the standards of both fresh and pre-packed foods. Th public is now much more conscious of its rights in this respect. As a resu we receive many legitimate complaints of adulteration of foodstuffs, an many enquiries from traders in connection with labelling and inspection c foods.

The routine duties of this small section are:—

(1) Taking samples of food and drugs for the purpose of analysis t ensure that they are of the nature, substance, and qualit demanded by the public.

(2) Examination and investigation of food and drugs for human con sumption or use.

(3) Inspection of pre-packed food to see that the labelling complie with the Food and Drugs Regulations, 1957.

Most of the results are achieved by advice and persuasion, but cou action is taken when necessary.

During 1957, 736 samples were submitted to the City Analyst f chemical analysis.

During the same time 51,283 lbs. (47,420 packages) of pre-packed foo 910 lbs. of frozen meat and 548,347 lbs. of vegetables were destroyed a unfit for human consumption. 4,380 packages of drugs were also destroye (These figures do not include fresh meat condemned in the Abattoirs.)

MATERNITY AND CHILD WELFARE DEPARTMENT

A full report by the Senior Assistant Health Officer in charge of this usy and expanding department is given at Appendix *E* (4).

The ever increasing birth rate was reflected in the congestion which ccurs daily in all the clinics and it is regretted that the important work of ome visiting had to be curtailed and staff diverted to the clinics.

Arrangements were completed for the first Dental Centre for antenatal others and toddlers and it is intended to expand this service.

The search for suitable sites for new clinics goes on and a close liaison s maintained with the Planning Authority so that sites for clinics will be vailable in new areas and, where possible, in replanned areas.

If the work of this department is to continue on the same scale as in he past, and if public demands are to be satisfied, a large expansion of the aternity and Child Welfare Services will have to be undertaken.

WELFARE SECTION

The Welfare Officer, two Assistant Welfare Officers, one Lady Assistant Velfare Officer and the clerical staff of the Welfare Department came nder the Health Department on 1st January, 1957, for accommodation and ccounting.

It was later decided that this section should be transferred back to the ecretariat on 1st January, 1958.

A report on the working of the section is given by the Welfare Officer t Appendix *E* (11).

MARKETS

Previously nine of the older Public Markets were administered by the ealth Department while the post-war markets and all the Hawkers' Shelters ere administered by the City Cleansing Department.

The Council decided to form a new department to be called 'The arkets and Hawkers Department', and the Chief Public Health Inspector as appointed the first Superintendent of this new department from 1st anuary, 1957, and will issue his own departmental report for 1957. The ealth Department handed over the records concerning the nine public arkets previously controlled by it, together with the staff involved, to the ew department.

Private Markets, previously licensed by the Health Department are now icensed by the Markets and Hawkers Department.

THE MASTER PLAN

Reference was made last year to the Master Plan for Singapore, and he health importance of the implementation of this Plan was stressed.

During 1957 the Planning Adviser to the Singapore Improvement Trust ncorporated into a revised Master Plan certain amendments which had arisen rom a Public Inquiry into the Master Plan and at the time of writing the osition is that formal approval by Government of these amendments is waited.

The rising birth rate, the shortage of land and the urgent need for schools, pen spaces, sites of clinics and other public buildings all add to the need or careful planning. Most of the insanitary conditions which exist in Singaore are due to complete disregard in the past of the elementary principles f planning.

As well as preparing the revised Master Plan, other work of the Master Plan Team in 1957 which will have an effect on the health of the people includes:—

> *Planning Surveys.*—Surveys were undertaken during 1957 of the new town sites at Thomson Road and Bulim and the Changi/Bedok Additional Town Map area. Further surveys were undertaken to help in the determination of policy on the location of flats and to determine the location and extent of attap development throughout the City.
>
> *Census.*—During 1957, census was taken over the whole island. The Master Plan Team is working in close co-operation with the Statistics Department of the Government and the census figures will provide extremely valuable information on which to base housing estimates and programmes for redevelopment and dispersal.
>
> *Queenstown.*—Development at Queenstown under the direction of the Singapore Improvement Trust Architects Department continued in accordance with the proposals of the Master Plan. Under these proposals there are carefully considered provisions for schools, clinics, health services and community buildings generally.
>
> *Preparation of further Town Maps.*—Continued progress has been made on the preparation of plans for new towns and Additional Town Map areas. The draft plans for Woodlands New Town have reached the advanced stage and those for Bulim and Thomson Road New Towns are now under way, following the completion of the surveys mentioned.
>
> *Consultation Committees, etc.*—The Master Plan Team has been consulted by the Planning Department on some 1,200 development proposals during 1957. The Master Plan Team is represented on the Singapore Improvement Trust Planning Committee, on the Planning Co-ordination Committee and the Highways Co-ordination Committee and is able through these Committees to advise on the provision of various community facilities in the building development.

Apart from the work of the Master Plan Team, the Replanning Division of the Planning Department, which is concerned with the preparation of detailed plans for the redevelopment of precincts in the Central Area which are at present overcrowded or in a poor state of repair was separately established. The proposals of this Division carry to a more detailed stage those included in the Master Plan (relating to Central Area).

Of the many external Committees on which the Health Officer serves as a member, the Planning Committee of the Singapore Improvement Trust is perhaps the most useful.

LEGISLATION

The Local Government Ordinance, 1957 (No. 24 of 1957) was passed at a Meeting of the Legislative Assembly held on the 30th day of July, 1957, and assented to by His Excellency the Governor on 9th August, 1957.

The sections affecting the City Health Department came into force on the 21st December, 1957, except Section 320 (1), which would cause the Municipal Ordinance to be repealed. This section has not yet come into force and until it does this department will continue to operate under both the Municipal Ordinance and the Local Government Ordinance, 1957.

STAFF TRAINING

It is important to get doctors of good quality into the public health service, especially with the new duties that are being placed on health departments of local authorities. For example, the new industrial legislation stresses the importance of industrial hygiene which has not until now received adequate attention. Singapore City Council is one of the few local authorities which gives its Assistant Health Officers paid study leave and defrays all expenses in connection with their courses leading to Diplomas in Public Health. Unfortunately, however, the other conditions are not so attractive o the newly qualified doctor as either general practice or Government service and this increases the difficulty in recruiting suitable men and women.

During 1957 Dr. Arthur Manoharan obtained the D.P.H. (University of London), Dr. (Mrs.) N. S. Mah obtained the D.P.H. (University of Malaya) and Dr. (Mrs.) N. R. Tan started on the course leading to the D.P.H. (University of Malaya).

The Deputy City Analyst, Mr. Lim Chin Kuan, returned from England having obtained the Post-Graduate Diploma in Applied Chemistry (Branch E) of The Royal Institute of Chemistry, and Mr. Chia Hong Hoe, Assistant Analyst, returned after two years post-graduate training in the United Kingdom during which time he obtained the M.Sc. of the University of London and the Diploma of the Imperial College.

A Divisional Public Health Inspector, a Health Sister and the Superin-endent of the Anti-Mosquito Department were specially selected to undergo raining in the Ministry of Labour, and all qualified as Instructors in 'Training Within Industry', each having been licensed as Instructors by the Ministry of Labour in:—

(1) Job Relations;

(2) Job Instructions;

(3) Job Methods.

They have passed on much of what they learned to their colleagues by holding organised courses in these subjects.

Two Health Visitors returned from Australia where they had both obtained post-graduate health nursing qualifications under the Colombo Plan.

One Staff Nurse from Middleton Hospital went to Australia under the Colombo Plan and obtained a post-graduate qualification in Fever Nursing n Melbourne. She remained in Australia for further studies.

Dr. A. Manoharan, Assistant Health Officer, and Mr. E. H. Holloway, enior Public Health Inspector, attended the Annual Congress of the Royal ociety for the Promotion of Health in Folkstone, England, in April 1957, s delegates from the City Council.

Four Public Health Inspectors obtained the Public Health Inspectors ualifications from The Royal Society of Health.

Two Public Health Inspectors attended a course in 'Leadership' at he Outward Bound School in Lumut, Perak, and both enjoyed the course nd benefitted from it.

In-service training courses were held for Probationary Public Health nspectors and for Health Visitors in training.

Organised courses in Infectious Diseases Nursing were given in the Middleton Hospital for Infectious Diseases.

Training in Health Education Techniques was started by an officer who had obtained the Diploma in the Content and Methods of Health Education at London University in June 1957, and it is hoped to increase this work. Some medical practitioners deprecate the sharing of medical knowledge with their patients on the grounds that a little knowledge is a dangerous thing, but when the popular press frequently carries features of medical information it is most desirable that the public should acquire such medical information as will result in better positive health, and all in-service training has been directed towards this aim. In addition the staff of the Health Department co-operated with the various activities of the Council for Health Education.

STAFF

Public servants are liable to vague charges of corruption and in this connection it is interesting to note that although no complaint of corruption was made against any member of the staff, Public Healh Inspectors were called upon as Crown Witnesses on three occasions (29th April, 6th June and 31st July) to give evidence against persons impersonating Public Health Inspectors. Each of the three persons accused was convicted and sentenced to a term of imprisonment.

The following changes in the staff occurred during 1957:—

APPOINTMENTS

Drs. K. V. Nair, K. M. Idicula and D. Ratnasabapathy (who is still employed in a temporary capacity) were appointed Medical Officers in charge of Staff.

Mr. T. F. Carey was appointed as Welfare Officer on 13th May, 1957. (The Welfare Department ceased to be part of the Health Department on 31st December, 1957.)

The following officers were also appointed in 1957:—

6 Health Visitors
3 Staff Nurses
1 Infectious Diseases Nurse
2 Hospital Assistants
5 Nursing Assistants
1 Public Health Inspector
11 Probationary Public Health Inspectors
2 Laboratory Assistants
1 Stenographer
4 Clerks
2 Female Recorders
1 Typist
4 Labour Lines Supervisors
1 Laboratory Attendant
19 Attendants
12 Watchmen
2 Peons.

RETIREMENTS

Dr. Chan Joo Cheng, Medical Officer in charge of Staff, retired on 9th June, 1957. Other retirements included two Divisional Public Health Inspectors, one Sister and one Nursing Assistant.

RESIGNATIONS

One Sister, one Health Visitor, two Peons and one Watchman resigned.

TERMINATION OF SERVICE

The Services of a temporary medical officer, a temporary laboratory sistant and a watchman were terminated.

PROMOTIONS

Mr. L. A. Marcus, Chief Public Health Inspector, was transferred and omoted Superintendent of Markets and Hawkers Department with effect om 1st January, 1957.

Mr. J. W. Bennett, Chief Food and Drugs Inspector, and Mr. Lee Kwong on, Senior Public Health Inspector, were promoted Chief Public Health spector and Deputy Chief Public Health Inspector respectively.

A Food and Drugs Inspector and a Senior Public Health Inspector were omoted Divisional Public Health Inspectors.

The following promotions were also confirmed: —

A Senior Sister to Matron
A Sister to Senior Sister
Three Staff Nurses to Sisters
A Hospital Assistant to Senior Hospital Assistant
A Watchman to Senior Watchman
A Peon to Senior Peon.

TRANSFERS

There were four transfers from the department to other departments of e City Council.

Mr. Chia Toh Meng was seconded to the department as Secretary on th April, 1957, and was seconded back to Secretariat as Secretary to the ayor on 27th December, 1957.

LEAVE

The following leave was granted to the 36 Senior and 365 Junior cluding 219 Subordinate) officers during 1957: —

Vacation Leave	9,384 days
Sick and Maternity Leave	2,379 ,,
"No Pay" Leave	302 ,,
Back-Log Leave	295 ,,
Accumulated Leave	262 ,,
Local Leave	13 ,,
Casual Leave	56 ,,
Voyage Leave	149 ,,
Outward Bound School and Volunteer Leave	75 ,,
Total Leave ..	12,816 days

Approximate number of man-days worked .. 92,431 days

STAFF SPORT

During 1957 the City Council Inter-departmental Challenge Cup f
football was won by the Health Department. The Canton Challenge Cup f
tennis was won by Public Health Inspector Stephen de Souza and both t
Conceicao Challenge Cup and the Chatterji Challenge Cup for tennis we
won by Public Health Inspector, Chan Swee Lee.

HEALTH OFFICER

In the middle of December, Dr. H. R. Morrison went on leave pri
to retirement, having taken advantage of a Council decision permitti
expatriate officers to retire earlier than the normal retiring age. He took wi
him the very best wishes of all the staff, with many of whom he had work
for over twenty years. At the Ordinary Meeting in December 1957 t
Council confirmed a Minute of the Health Committee thanking Dr. Morris
for his good work and wishing him and his family the best of luck.

JOHN CAMERON,
M.B., CH.B., D.P.H., D.T.M. & H., D.I.
Acting City Health Officer.

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E (6) Superintendent, City Abattoirs
E (7) Chief Public Health Inspector
E (8) Medical Officer in charge of Staff
E (9) Rodent Overseer
E (10) Infectious Diseases Nurse
E (11) Welfare Officer

APPENDIX A

Table 1

NOTIFIABLE INFECTIOUS DISEASES

The number of cases notified in persons who were stated to be ordinarily resident within the City Area in 1957 and in the previous five years are shown in the table which follows:—

—	1952	1953	1954	1955	1956	Average for 5 years	1957
Small-pox	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..
Typhoid Fever	136	89	120	100	74	103.8	85
Para-typhoid Fever	2	2	..	..	2	1.2	1
Diphtheria	352	245	267	347	425	327.2	576
Cerebro-Spinal Fever ..	5	5	2	1	1	2.8	..
Typhus Fever*	16	9	15	4†	5‡	9.8	1§
Scarlet Fever	..	1	..	..	..	0.2	..
Leprosy	95	124	120	120	115	114.8	88
Poliomyelitis	45	30	53	9	26	32.6	41
Anthrax	..	..	..	..	..	..	..
Puerperal Fever	78	43	52	60	64	59.4	84
Erysipelas	16	15	13	10	3	11.4	4
Chicken-pox	413	713	1,057	1,687	1,402	1,054.4	980
Tuberculosis	2,990	2,911	2,580	2,979	2,835	2,859.0	2,559
Total ..	4,148	4,187	4,279	5,317	4,952	4,576.6	4,419

---

* Under the heading of Typhus are included Tsutsugamushi or Scrub Typhus of Malaya (Mite Borne) and Flea Borne (Urban Type Tropical Typhus). Louse Borne Typhus has not been seen in Singapore.

† 2 Flea Borne and 2 Mite Borne.

‡ Flea Borne.

§ Mite Borne.

Table 2

NOTIFIABLE INFECTIOUS DISEASES BY RACES FOR THE YEAR 1957

—	Europeans	Eurasians	Chinese	Malays	Indians	Others	Total
Typhoid Fever . .	1 (1)	1 (3)	57 (23)	15 (10)	11 (8)	— (—)	85 (45)
Diphtheria . .	1 (—)	4 (—)	520 (146)	29 (11)	21 (7)	1 (—)	576 (164)
Chicken-pox . .	1 (3)	19 (4)	364 (65)	123 (50)	466 (176)	7 (—)	980 (298)
Puerperal Fever . .	— (—)	— (—)	25 (—)	56 (—)	2 (—)	1 (—)	84 (—)
Poliomyelitis . .	8 (11)	— (—)	28 (6)	3 (4)	2 (4)	— (1)	41 (26)
Cerebro-spinal Fever . .	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Tuberculosis . .	1 (1)	9 (3)	2,192 (381)	207 (57)	147 (31)	3 (—)	2,559 (473)
Para-typhoid Fever . .	— (—)	— (—)	1 (—)	— (—)	— (—)	— (—)	1 (—)
Leprosy	— (—)	— (—)	77 (23)	4 (3)	7 (1)	— (—)	88 (27)
Typhus Fever . .	— (—)	— (—)	1* (1)*	— (—)	— (—)	— (—)	1* (1)*
Erysipelas . .	1 (—)	1 (—)	2 (1)	— (—)	— (—)	— (—)	4 (1)
Small-pox . .	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Cholera	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Scarlet Fever . .	— (—)	— (—)	— (1)	— (—)	— (—)	— (—)	— (1)
Total . .	13 (16)	34 (10)	3,267 (647)	437 (135)	656 (227)	12 (1)	4,419 (1,036)

The figures not in brackets are of cases notified in persons ordinarily resident in the City Area.

The figures in brackets are Imported Cases and cases from Rural Board treated in Hospitals or Institutions in the City Area but not ordinarily resident in the City Area.

* Mite borne

Table 3

NOTIFIABLE INFECTIOUS DISEASES BY MONTHS FOR THE YEAR 1957

(Figures in brackets are cases in non-residents)

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Typhoid Fever ..	6 (5)	10 (14)	15 (3)	7 (4)	2 (—)	8 (2)	4 (5)	2 (—)	1 (5)	9 (3)	14 (1)	7 (3)	85 (45)
Diphtheria	18 (9)	37 (9)	41 (7)	47 (10)	44 (21)	35 (8)	43 (18)	44 (16)	51 (14)	71 (22)	85 (20)	60 (10)	576 (164)
Chicken-pox ..	99 (22)	145 (52)	195 (50)	133 (44)	70 (27)	35 (10)	31 (15)	42 (20)	39 (10)	60 (15)	69 (17)	62 (16)	980 (298)
Puerperal Fever ..	3 (—)	10 (—)	7 (—)	5 (—)	17 (—)	9 (—)	10 (—)	3 (—)	4 (—)	5 (—)	8 (—)	3 (—)	84 (—)
Poliomyelitis ..	11 (5)	3 (5)	3 (1)	2 (1)	3 (1)	3 (1)	3 (4)	— (3)	3 (2)	5 (3)	5 (—)	— (—)	41 (26)
Cerebro-Spinal Fever ..	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Leprosy	11 (1)	8 (3)	5 (4)	10 (5)	8 (1)	9 (3)	8 (3)	6 (2)	4 (2)	6 (1)	4 (1)	9 (1)	88 (27)
Typhus Fever ..	1* (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (1)*	1* (1)*
Erysipelas	— (1)	1 (—)	— (—)	— (—)	— (—)	— (—)	— (—)	1 (—)	1 (—)	1 (—)	— (—)	— (—)	4 (1)
Small-pox	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Cholera	— (—)	— (—)	— (—)	— (—)	— (—)	— —()	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Scarlet Fever ..	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (1)	— (—)	— (—)	— (—)	— (1)
Para-typhoid Fever ..	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	— (—)	(1) (—)	— (—)	— (—)	— (—)	— (—)	— (—)
Tuberculosis ..	150 (18)	213 (43)	236 (58)	186 (44)	233 (22)	285 (50)	243 (54)	201 (34)	108 (20)	210 (36)	193 (31)	301 (63)	2,559 (473)
Total ..	299 (61)	427 (126)	502 (123)	390 (108)	377 (72)	384 (74)	342 (99)	300 (75)	211 (54)	367 (80)	378 (70)	442 (94)	4,419 (1,036)

Typhus * Mite Borne.

Table 4

POLIOMYELITIS

CONFIRMED CASES NOTIFIED IN 1957 BY RACES, SEX AND AGE GROUPS

Table includes imported cases as well as in City Resident (Cases in service personnel and families included)

	Europeans			Eurasians			Chinese			Malays			Indians			Others			Total		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
0– 5 years	2	2	4	..	..	..	16	10	26	6	1	7	3	2	5	..	..	..	27	15	42
5–10 ,,	3	1	4	..	..	..	4	3	7	..	..	..	..	..	..	..	..	..	7	4	11
10–15 ,,	1	1	2	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	1	2	3
15–20 ,,	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
20–25 ,,	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25–35 ,,	1	3	4	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	2	3	5
35–45 ,,	2	1	3	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	3	1	4
45–55 ,	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Total ..	11	8	19	..	..	..	20	14	34	6	1	7	4	2	6	1	..	1	42	25	67

26 of the 67 confirmed cases of Poliomyelitis notified within the City Area were non-residents.

Table 5

POLIOMYELITIS CASES NOTIFIED AND CONFIRMED IN 1957

Under 5 years of age (Resident and non-resident)
Cases in Service Personnel and Families included

	0–1 year		1–2 years		2–3 years		3–4 years		4–5 years		Total under 5 years	Total over 5 years
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Europeans	. .	. .	2	1	. .	. .	. .	1	. .	. .	4	15
Eurasians	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Chinese	3	1	4	3	5	3	3	3	1	. .	26	8
Malays	2	. .	1	. .	3	. .	. .	1	. .	. .	7	. .
Indians	. .	. .	1	1	1	1	. .	. .	1	. .	5	1
Others	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	1
Total .	5	1	8	5	9	4	3	5	2	. .	42	25

Table 6

PERCENTAGE OF PARALYTIC AND NON-PARALYTIC POLIOMYELITIS CASES TREATED AT MIDDLETON HOSPITAL 1956 AND 1957.

	1956	1957
Total cases treated at Middleton Hospital ..	37	52
Paralytic cases	36	52
Non-paralytic cases	1	..
Percentage of Paralytic cases	97%	100%

Table 7

NOTIFICATIONS OF TUBERCULOSIS (ALL TYPES) 1957 (IN CITY RESIDENTS ONLY)

Sex	AGE GROUPS							
	0–5 years	5–10 years	10–15 years	15–20 years	20–45 years	Over 45 years	Age not stated	Total
Males	41	15	8	82	981	826	3	1956
Females	41	7	7	32	319	194	3	03
Total ..	82	22	15	114	1,300	1,020	6	2,559

Table 8

INSTITUTIONS, ETC., WHENCE TUBERCULOSIS NOTIFICATIONS WERE RECEIVED

2,559 cases of Tuberculosis (all types) in City residents and 473 in non-residents that is 3,032 in all, were notified during the year. 10 of these were not ordinarily resident in the Colony.

Notified by	R.S.T.C.	T.T.S. Clinic	General Hospital	Total R.S.T.C. and Hospitals	Private Practi-tioners	Total
Number of cases notified	1,568	748	239	2,555	477	3,032

APPENDIX *B*

Table 1

GENERAL MEASURES TAKEN TO PREVENT IMPORTATION AND SPREAD OF INFECTIOUS DISEASES

PASSENGERS UNDER SURVEILLANCE DURING THE YEAR 1957

Number of Passenger Undertakings received ..	1,103
Number of Persons under surveillance ..	1,134
Number of Persons seen	611
Number of Persons not seen and could not be traced ..	523

Table 2

HOUSES QUARANTINED, DISINFECTED, AND INFECTIOUS CASES REMOVED TO INFECTIOUS HOSPITAL, TRAFALGAR HOSPITAL

Houses quarantined	..
Houses Disinfected	1,007
Infectious cases removed to Infectious Hospital ..	271
Leper cases removed to Trafalgar Hospital ..	57

Table 3

VACCINATIONS BY CITY VACCINATORS, MEDICALMEN, PRIVATE AND GOVERNMENT VACCINATORS

1957

———	Successful	Modified	Failed	Not seen	Total
City Vaccinators	22,213	2	23	811	23,149
Medicalmen	11,806	..	11	..	11,817
Private and Government Vaccinators	382	..	..	..	382
Total ..	34,401	2	34	811	35,348

Table 4

VACCINATION BY RACES, 1957

Race	Under 6 months	6–12 months	1–5 years	Over 5 years	Total
Chinese	18,029	7,739	1,526	108	27,402
Malays	3,540	1,186	184	7	4,917
Indians	1,991	501	44	4	2,540
Eurasians	211	52	11	1	275
Europeans	47	19	1	1	168
Others	44	2	..	..	46
Total ..	23,862	9,499	1,766	121	35,348

APPENDIX *C*

Table 1

BIRTHS AND STILL-BIRTHS

The following is the number of births for each month of the year, 1956 figures being also shown:—

Month	1956	1957	Month	1956	1957
January	3,410	3,912	July	3,669	3,820
February	3,289	3,525	August	3,684	3,828
March	3,259	3,669	September	3,530	3,899
April	3,644	3,737	October	3,714	4,329
May	3,758	4,105	November	4,156	4,248
June	4,111	3,520	December	3,820	3,911
Total ..	21,471	22,468	Total ..	22,573	24,035

Table 2

The births registered by races were:—

——	1957			1956		
	Males	Females	Total	Males	Females	Total
Europeans	187	182	369	161	160	321
Eurasians	178	155	333	189	135	324
Chinese	18,806	17,557	36,367*	17,867	16,631	34,500‡
Malays	2,546	2,303	4,849†	2,411	2,267	4,679§
Indians	2,172	2,025	4,198	1,904	1,897	3,801
Others	203	184	387	218	201	419
Total ..	24,092	22,406	46,503	22,750	21,291	44,044

* Includes 4 Chinese. † Includes 1 Indian sex unknown. ‡ Includes 2 Chinese.
§ Includes 1 Malay sex unknown.

Table 3

The birth rate for each race in 1957 and the corresponding rate for 1956 are shown in the able which follows:—

——	1956	1957
Europeans	27.08	Figures not available from census department.
Eurasians	31.90	
Chinese	49.34	
Malays	49.73	
Indians	53.70	
Others	39.15	
All Races Combined	44.02	

Note:—Census Population by races not available as yet.

Table 4

The table which follows, shows the number of live-births by race and sex that occurred at the Government Maternity Hospital in 1957 and also the percentage of the total registered live-births of each race born at this hospital:—

——	1957			Percentage of total births registered by race born at the Govt. Hospital	
	Males	Females	Both Sexes	1957	1956
Chinese	12,010	10,978	22,992*	63.22	59.40
Indians	1,565	1,440	3,006†	71.61	67.85
Malays	381	359	740	15.26	12.63
Europeans	126	104	230	62.33	61.37
Eurasians	107	105	212	63.66	61.42
Others	106	102	208	53.75	58.85
Total All Races ..	14,295	13,088	27,388	58.90	55.18

* Includes 4 Chinese sex unknown. † Includes 1 Indian sex unknown.

Table 5

The percentage of the total births registered by races in the Census years 1911, 1921, 1931, 1947 and in 1951—1957 is shown in the table which follows:—

Year	Total Births	Chinese	Malays	Indians	Other Races	Percentage of Total Births			
						Chinese	Malays	Indians	Other Races
1911 ..	5,560	3,750	1,051	406	353	67.4	18.8	7.3	7.52
1921 ..	10,237	7,789	1,270	640	538	76.0	12.4	6.2	5.26
1931 ..	16,488	13,229	1,758	917	584	80.23	10.66	5.56	3.54
1947 ..	30,548	24,247	3,233	2,323	745	79.3	10.5	7.6	2.44
1951 ..	34,776	27,686	3,542	2,819	729	79.61	10.19	8.11	2.10
1952 ..	36,529	28,853	3,842	3,097	737	78.99	10.52	8.48	2.02
1953 ..	39,322	31,076	4,062	3,387	798	79.03	10.33	8.61	2.03
1954 ..	40,935	32,018	4,466	3,468	983	78.22	10.91	8.47	2.40
1955 ..	42,090	32,830	4,564	3,650	1,046	78.00	10.84	8.67	2.49
1956 ..	44,044	34,500	4,679	3,801	1,064	78.33	10.62	8.63	2.42
1957 ..	46,503	36,367	4,849	4,198	1,089	78.20	10.43	9.03	2.34

Table 6

The Still-births registered in 1957 and 1956 are shown in the table which follows:—

	1957			1956		
	Males	Females	Total	Males	Females	Total
Europeans	1	..	1	3	2	5
Eurasians	3	2	5	5	1	6
Chinese	275	246	521	242	215	457
Malays	78	64	142	74	70	144
Indians	53	58	111	48	52	100
Others	6	5	11	7	9	16
Total ..	416	375	794*	379	349	734†

* Includes 3 Chinese sex unknown. † Includes 2 Chinese, 3 Malays sex unknown. Includes 1 Race and sex unknown.

Table 7

The percentage of illegitimate births over live births is .056 for the year 1957 and the table below shows the sex and racial group of mother:—

	Male	Female	Total
Europeans	..	..	..
Eurasians	..	1	1
Chinese	9	10	19
Malaysians	2	..	2
Indians and Pakistanis	..	2	2
Others	2	..	2
Total ..	13	13	26

APPENDIX *D*

Table 1

DEATHS

The following return shows the number of deaths and the death rate for each month of the year:—

Month	No. of Deaths	Death Rate	Month	No. of Deaths	Death Rate
January	635	8.11	July	742	9.47
February	623	8.81	August	644	8.22
March	603	7.70	September	629	8.30
April	675	8.91	October	639	8.16
May	1,222	15.60*	November	642	8.47
June	735	9.70	December	616	7.87

* This increase was due to "Asian Flu" epidemic.

Percentage of deaths of persons over the age of 65 ..	18.88
Total deaths for the year ending 31st December, 1957	8,405
Total deaths from CANCER OF THE LUNG ..	85
Number of deaths certified by Inspecting Officers ..	1,740
Percentage of cases certified by Inspecting Officers ..	20.70
Note:—Medically qualified Inspecting Officer certified	862
Qualified H. A. Inspecting Officer certified ..	878

Table 2

The chief causes of death in 1956 and 1957 and the rate per 1,000 living are set out in the table which follows:—

——	1956		1957	
	Cases	Rate per Mille	Cases	Rate per Mille
Bronchitis and Pneumonia	933	1.04	1,042	1.13
Tuberculosis	668	0.74	650	.70
Diarrhoea and Enteritis	4 8	0.50	491	.53
Diseases of early Infancy	883	0.98	857	.93
Infantile Convulsions (up to 5 years) ..	152	0.17	149	.16
Violence	476	0.53	574	.62
Heart Disease	631	0 70	722	.78
Old Age	498	0.56	502	.54
Cancer	579	0.65	650	.70
Nephritis	220	0.25	208	.23
Beri-Beri	85	0.09	117	.13
Diphtheria	59	0.07	63	.07
Malaria	6	0.007	9	.009
Dysenteries	19	0.02	21	02
Typhoid	7	0.008	5	.005

Table 3

MORTALITY ACCORDING TO RACES AND AGES, 1957

Age Group	EUROPEANS			EURASIANS			CHINESE			MALAYSIANS			INDIANS AND PAKISTANIS			OTHERS			TOTAL		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Under 1 day	..	1	1	1	2	3	114	71	185	22	22	44	15	11	26		3	6	155	110	265
1 day and under 2 days	..	..	..	1	..	1	66	37	103	8	5	13	10	8	18	2	..	2	87	50	137
2 days and under 3 days	..	..	..	..	..	..	37	25	62	6	11	17	4	3	7	1	..	1	48	39	87
3 days and under 4 days	..	..	..	1	..	1	37	17	54	12	11	23	4	2	6	..	..	..	54	30	84
4 days and under 5 days	..	..	..	..	..	..	21	18	39	6	7	13	2	6	8	1	..	1	30	31	61
5 days and under 6 days	..	..	..	1	..	1	16	11	27	5	3	8	..	..	..	..	..	..	22	14	36
6 days and under 7 days	..	..	..	..	..	..	13	4	17	1	..	1	1	..	1	..	..	..	15	4	19
7 days and under 14 days	1	..	1	..	..	..	43	33	76	9	9	18	4	6	10	..	1	1	57	49	106
14 days and under 21 days	..	..	..	..	..	..	33	28	61	8	10	18	..	2	2	..	..	..	41	40	81
21 days and under 28 days	..	..	..	..	..	..	19	12	31	6	4	10	1	2	3	1	2	3	27	20	47
Neo-Natal Deaths	1	1	2	4	2	6	399	256	655	83	82	165	41	40	81	8	6	14	536	387	923

Table 3—*continued*

MORTALITY ACCORDING TO RACES AND AGES, 1957—*continued*

Age Group	EUROPEANS			EURASIANS			CHINESE			MALAYSIANS			INDIANS AND PAKISTANIS			OTHERS			TOTAL		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
28 days and under 2 months ..	..	..	..	..	..	..	54	65	119	37	18	55	7	7	14	..	..	..	98	90	188
2 months and under 3 months ..	..	..	..	..	..	..	56	42	98	23	23	46	11	7	18	..	..	..	90	72	162
3 months and under 4 months ..	..	..	..	..	..	..	43	38	81	17	14	31	5	8	13	1	..	1	66	60	126
4 months and under 5 months ..	..	..	..	..	..	..	44	23	67	16	14	30	2	4	6	..	..	..	62	41	103
5 months and under 6 months ..	..	1	1	..	..	..	27	27	54	12	8	20	8	3	11	..	1	1	47	40	87
6 months and under 7 months ..	1	..	1	..	1	1	34	29	63	14	11	25	4	3	7	1	..	1	54	44	98
7 months and under 8 months ..	..	..	..	..	1	1	20	24	44	13	10	23	7	3	10	1	..	1	41	38	79
8 months and under 9 months ..	..	..	..	1	..	1	27	23	50	7	5	12	4	5	9	..	1	1	39	34	73
9 months and under 10 months ..	..	..	..	..	..	..	19	23	42	6	4	10	2	1	3	..	..	..	27	28	55
10 months and under 11 months ..	..	..	..	..	..	..	27	16	43	8	5	13	4	..	4	..	..	..	39	21	60
11 months and under 12 months ..	..	..	..	..	..	..	19	16	35	1	4	5	1	..	1	..	..	..	21	20	41
Infant Mortality	2	2	4	5	4	9	769	582	1,351	237	198	435	96	81	177	11	8	19	1,120	875	1,997

Table 3—*continued*

MORTALITY ACCORDING TO RACES AND AGES, 1957—*continued*

Age Group	EUROPEANS			EURASIANS			CHINESE			MALAYSIANS			INDIANS AND PAKISTANIS			OTHERS			TOTAL		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
1 year and under 2 years ..	1	..	1	..	..	..	107	108	215	36	43	79	17	6	23	..	1	1	161	158	319
2 years and under 3 years ..	..	..	..	..	1	1	81	85	166	15	22	37	9	4	13	..	1	1	105	113	218
3 years and under 4 years ..	..	..	..	..	..	..	42	34	76	2	7	9	9	3	12	..	1	1	53	45	98
4 years and under 5 years ..	..	..	..	..	..	..	39	31	70	7	4	11	3	2	5	..	..	..	49	37	86
5 years and under 10 years ..	1	..	1	..	..	..	103	92	195	28	11	39	6	7	13	1	..	1	139	110	249
10 years and under 15 years ..	..	..	..	..	..	..	53	34	87	8	6	14	2	2	4	1	..	1	64	42	106
15 years and under 20 years ..	2	..	2	..	..	..	55	24	79	13	11	24	4	4	8	..	1	1	74	40	114
20 years and under 25 years ..	2	..	2	..	1	1	57	37	94	12	11	23	6	4	10	1	2	3	78	55	133
25 years and under 30 years ..	..	..	..	..	..	..	63	47	110	6	14	20	11	9	20	2	..	2	82	70	152
30 years and under 35 years ..	2	..	2	..	1	1	70	51	121	14	9	23	27	9	36	2	2	4	115	72	187
35 years and under 40 years ..	1	1	2	1	1	2	93	67	160	17	15	32	39	12	51	3	..	3	154	96	250
40 years and under 45 years ..	3	1	4	..	..	..	149	119	268	21	14	35	40	8	48	3	1	4	216	143	359
45 years and under 50 years ..	4	3	7	3	1	4	273	119	392	24	23	47	47	11	58	4	1	5	355	158	513
50 years and under 55 years ..	6	..	6	4	1	5	332	156	488	36	25	61	59	8	67	6	..	6	443	190	633
55 years and under 60 years ..	..	2	2	6	6	12	386	156	542	39	33	72	57	4	61	1	1	2	489	202	691
60 years and under 65 years ..	2	2	4	6	2	8	406	183	589	29	26	55	39	6	45	1	1	2	483	220	703
65 years and under 70 years ..	3	..	3	3	..	3	326	185	511	19	22	41	13	7	20	4	2	6	368	216	584
70 years and under 75 years ..	4	..	4	..	4	4	194	184	378	14	9	23	10	2	12	1	2	3	223	201	424
75 years and under 80 years ..	3	..	3	2	2	4	99	157	256	9	13	22	6	4	10	3	..	3	122	176	298
80 years and under 85 years ..	..	2	2	..	3	3	49	101	150	6	2	8	2	1	3	..	1	1	57	110	167
85 years and over	..	..	..	..	1	1	23	72	95	7	7	14	1	1	2	1	1	2	32	82	114
Age Unknown	..	..	..	..	..	..	4	..	4	..	..	..	2	..	2	1	1	2	7	1	8
Total all ages ..	36	13	49	30	28	58	3,773	2,624	6,397	599	525	1,124	505	195	700	46	27	73	4,989	3,412	8,405*

* Includes 4 of Unknown sex.

Table 4

INFANTILE MORTALITY BY RACES, 1948–1957

Year	Europeans	Eurasians	Chinese	Malays	Indians	Others	All Races
1948 ..	28.0	45.3	83.9	163.1	80.0	67.0	90.10
1949 ..	19.3	38.7	74.3	122.7	82.1	109.5	79.18
1950 ..	18.9	53.0	87.4	145.8	71.3	65.9	91.22
1951 ..	21.7	41.1	73.7	130.4	68.5	158.2	78.79
1952 ..	35.7	45.6	71.0	120.8	64.9	102.6	75.34
1953 ..	21.7	64.6	66.7	116.7	63.8	127.3	71.54
1954 ..	29.5	37.2	52.5	110.4	64.3	68.1	59.66
1955 ..	12.2	36.7	45.0	106.9	47.7	43.6	51.60
1956 ..	9.3	27.8	38.8	96.0	34.7	21.5	44.02
1957 ..	10.8	27.0	37.1	89.7	42.2	49.1	42.94

Table 5

The main causes of death in infants and the rate per 1,000 live births for each disease in 1957 and 1956 are set in the table which follows:—

—	1957		1956	
	Cases	Rate per Mille	Cases	Rate per Mille
Congenital syphilis	10	.22	11	.25
Pneumonia and Bronchitis	330	7.10	308	6.99
Diarrhoea and Enteritis	321	6.90	278	6.31
Congenital Malformations	112	2.41	131	2.97
Diseases of Early Infancy	857	18.43	883	20.05
Tetanus	3	.06	10	.22
Beri-beri	11	.24	14	.32
Tuberculosis	13	.28	24	.54
Ill-defined and unknown causes ..	153	3.29	118	2.68
Other diseases	187	4.02	162	3.68
Total ..	1,997	42.94	1,939	44.02

Table 6

1957 INFANTILE MORTALITY ACCORDING TO RACE, SEX AND AGE GROUPS

Race	Sex	AGE GROUP								
		0–1 Day	1–7 Days	1–4 Weeks	0–4 Weeks	4 Weeks–3 Months	3–6 Months	6–9 Months	9–12 Months	0–12 Months
Europeans	M.	..	..	1	1	..	..	1	..	2
	F.	1	..	..	1	..	1	..	..	2
Eurasians	M.	1	3	..	4	..	..	1	..	5
	F.	2	..	..	2	..	..	2	..	4
Chinese	M.	114	190	95	399	110	114	81	65	769
	F.	71	112	73	256	107	88	76	55	582
Malays	M.	22	38	23	83	60	45	34	15	237
	F.	22	37	23	82	41	36	26	13	198
Indians	M.	15	21	5	41	18	15	15	7	96
	F.	11	19	10	40	14	15	11	1	81
Others	M.	3	4	1	8	..	1	2	..	11
	F.	3	..	3	6	..	1	1	..	8
Total Races ..	M.	155	256	125	536	188	175	134	87	1,120
	F.	110	168	109	387	162	141	116	69	875
Combined Total ..		265	424	234	923	350	316	250	156	1,997*

Includes—1 Indian Sex unknown.
Race and Sex unknown.

APPENDIX *D—continued*

Table 7

NEO-NATAL RATES BY RACES AND SEX (1955–57)

	1957			1956			1955		
	Males	Females	Both Sexes	Males	Females	Both Sexes	Males	Females	Both Sexes
Europeans	5.35	5.49	54.42	6.21	6.25	6.23	6.49	..	3.04
Eurasians	22.47	7.84	18.02	21.16	22.22	21.60	28.57	52.63	39.76
Chinese	21.22	14.58	18.01	25.35	15.15	20.43	26.58	22.23	24.46
Malays	32.60	35.61	34.03	41.89	29.11	35.69	43.59	36.42	40.10
Indians	18.88	19.75	19.29	24.68	14.23	19.47	22.82	19.82	21.37
Others	39.41	32.61	36.18	9.17	9.48	9.53	25.51	41.24	33.33
Total	22.25	17.27	19.85	26.73	16.49	21.77	27.96	23.53	25.80

Table 8

The chief causes of the neo-natal deaths in infants in 1957 and 1956 are shown in the able which follows:—

—	1957		1956	
	No. of Cases	% Total Neo-natal deaths	No. of Cases	% Total Neo-natal deaths
1. Ill-defined diseases peculiar to early infancy and Immaturity	252	27.30	346	36.08
2. Birth Injuries	163	17.66	120	12.51
3. Post-natal asphyxia and atelectasis . .	147	15.93	119	12.41
4. Infection of new born	142	15.38	162	16.89
5. Haemolytic disease of new born . .	86	9.32	82	8.55
6. Other diseases of early infancy . .	15	1.63	10	1.04
7. Congenital malformations	66	7.15	64	6.67
8. Ill-defined and unknown causes . .	27	2.93	23	2.40
9. Congenital syphilis	4	.43	4	.42
10. Beri-beri	2	.22	. .	. .
11. Septicaemia and Pyaemia	5	.54	2	.22
12. Tetanus	3	.33	10	1.04
13. Other diseases	11	1.19	17	1.77
Total . .	923		959	

Table 9

CERTIFICATION OF DEATHS, 1957

By whom certified	Europeans	Eurasians	Chinese	Malays	Indians	Others	Total
Medical Practitioners . .	28	50	4,359	477	403	37	5,354
City Council Inspecting Officers	. .	3	1,054	572	100	11	1,740
Coroner	21	5	986	75	198	26	1,311
Total . .	49	58	6,399	1,124	701	74	8,405

Table 10

In the table which follows are shown the percentage number of deaths the causes of which were certified by Medical Practitioners, Inspecting Registrars and the Coroner, in the years 1948 to 1957:—

—	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
Medical Practitioners . .	60.22	59.81	58.89	59.82	63.30	66.63	65.25	64.56	65.17	63.70
Registrars . .	31.92	31.85	31.55	30.10	25.90	22.99	22.45	22.22	21.09	20.70
Coroner . .	7.86	8.34	9.56	10.08	10.80	10.38	12.30	13.22	13.74	15.63

APPENDIX *E*

Table 1

Licences Issued and Fees Collected.

Year	LICENCES ISSUED			Total Fees
	Total	Food By-laws	Offensive Trades	$ c.
1956	2,206	1,767	439	80,896 00 17,907 27 98,803 27
1957	2,160	1,729	431	80,592 00 18,237 18 98,829 18

Table 2

THE NUMBER OF ANIMALS SLAUGHTERED AT THE ABATTOIRS IN 1956 AND 1957

	1956	*1957*
Pigs	431,373	420,864
Sheep	64,636	69,073
Goats	2,918	3,636
Oxen	3,057	4,004
Buffaloes	3,437	2,516
Horses	9	26
Total ..	505,430	500,119

NUMBER OF PIGS FROM VARIOUS SOURCES SLAUGHTERED AT ABATTOIR AND APPROXIMATE WEIGHT OF PORK PRODUCED IN 1956 AND 1957

	1956		1957	
	Number of pigs slaughtered	Approximate weight katties	Number of pigs slaughtered	Approximate weight katties
Local pigs—Average carcase weight, 50 katties	412,243	20,612,150	401,944	20,097,200
Federation pigs—Average carcase weight, 60 katties	18,429	1,105,740	11,625	697,500
Bali pigs—Average carcase weight, 90 katties	701	63,090	7,295	656 550
Total ..	431,373	21,780,980	420,864	21,451,250

Table 2—*continued*

CARCASES TOTALLY CONDEMNED AT THE ABATTOIRS 1957

Swine	*Sheep*	*Oxen*	*Buffaloes*	*Goats*	*Total Condemned*
63	50	19	4	3	139

REVENUE

The total revenue excluding the rent received for use of chilling rooms from the Abattoirs n 1957 was $974,689.20. This is nearly $17,643.05 less than the previous year's revenue which as $992,332.25.

Table 3

BURIAL GROUNDS

1957	Deaths registered within the City Area	Burials and Cremations made in City Cemeteries and licensed burial grounds in the City Area	Exhumations
Europeans	49	45	..
Eurasians	58	78	..
Chinese	6,399	† 5,669(4)	10,863
Malays	1,124	1,326	..
Indians	701	1,134(250)	..
Others	74	* 75(3)	..
Total ..	8,405	8,327(257)	10,863

* Includes one burial of ashes. † Includes 1,816 reburial of corpses.

Figures in brackets denote number cremated.

ANTI-MOSQUITO DEPARTMENT

I have the honour to submit the report on the work of the Anti-Mosquit Department for the year 1957.

2. *Incidence of Malaria.*—Eighteen cases of Malaria were reported fro hospitals and dispensaries during the year. Thirteen gave addresses within th City. All the thirteen cases with the exception of one who gave a wron address were fully investigated and found to be imported cases or relapses The imported cases were found to be from the neighbouring islands, Federation of Malaya, Indonesia, Borneo, India, West Africa, etc.

3. *Trapping of Adult Mosquitoes.*—The three mosquito traps set up i various parts of the City for the collection and subsequent identification o adult mosquitoes, continued to provide a valuable check on our malaria control measures. For details, see Appendix *A*.

4. *Larvæ Searching.*—8,802 collections of mosquito larvæ were brough by the field staff to the departmental laboratory for identification. As in th past, a close watch for the breeding of the malaria vector—*A. sundaicus*, wa kept on all boats brought into the Singapore and Kallang Rivers for repairs No such breeding was found in any of the boats. Appendix *B* is an analysi of 1,000 consecutive larval collections during the year showing the commo breeding places within the City.

Appendix *C* gives the total number of collections and also of the differen vector species showing their respective breeding places.

5. *Permanent Anti-Malarial Works.*—The areas under permanent control were extended by the construction of 800 yards of concrete anti-malaria drains and the laying of 645 yards of subsoil pipe lines. In addition to this 2,539 yards of worn-out anti-malarial drains were reconstructed with ne materials.

Details of permanent anti-malarial works are listed in Appendix *D*.

Minor repairs to existing permanent anti-malarial works were carrie out as and when required and details of these are given in Appendix *E*.

6. *Prawn Ponds in Kallang Basin.*—Weekly inspections continued as i past years, to ensure that sluice gates were opened and algæ growths in ponds removed. No breeding of *A. sundaicus* was found in this area during the year

7. *Kampong Sanitation.*—As in the past year, existing kampong sanitation drains were regularly maintained by the Kampong Sanitation Labour Force. In addition to providing drainage for 10 new standpipes installed during the year, the damaged bases of 30 existing standpipes were reconstructed and new drainages provided. For details of Kampong Sanitation works please see Appendix *F*.

8. *Maintenance.*—Maintenance Work by ten gangs and 4 machine units was continued on the basis of cleansing anti-malarial drains approximately once in 35 days. Five patrol gangs continued to work around the General Hospital, Tan Tock Seng Hospital, Kallang Basin, Tanjong Rhu, Siglap, Katong and Geylang areas mainly to control the breeding of *A. sundaicus*. Altogether 172,973 yards of concrete drains and 21,528 yards of earth drains were regularly maintained.

Of the above total length of concrete drains, 31,888 yards were daily leansed satisfactorily by contract labour at a cost of $11,000 per month. hese drains are no longer functioning as anti-malarial ones but more as ullage drains for developed areas.

1,459 baskets of tins and other water-bearing receptacles were collected nd disposed of.

9. *Larvicidal Works.*—(i) *Anti-Malarial Mixture.*—During the year 03,357 gallons of Anti-Malarial Mixture were used. Of this 47,583 gallons ontained 1 per cent D.D.T.

Towards the middle of the year with a view to reducing expenditure on nti-Malarial Works oiling was done without addition of D.D.T. to the ixture. To ensure that all the Anti-Malarial Mixture received were according to specifications and effective, regular field and laboratory tests were arried out.

Apart from the routine oiling, the oilers and the supervisory staff had o deal with a large number of mosquito breeding places created in the ourse of development of properties, damaged and blocked public and private oadside drains and the activities of squatters in several kampongs. Oiling ad also to be carried out in water-logged areas caused by the interference ith drainage by the building of temporary dwellings in approved attap areas.

(ii) *Shell Malariol Emulsion.*—This larvicide was used for the control f breeding in places where an oily larvicide was undesirable. 96¾ gallons f this larvicide were expended.

(iii) *Shell Malariol H.S.*—277¼ gallons of this larvicide were used to ontrol mosquito-breeding in fish and vegetable ponds in the Sungei Whampao nd the Kallang Basin Areas.

(iv) *Gammexane.*—411½ lb. of this larvicide were used as a temporary ontrol measure against nuisance mosquito breeding in septic tanks and locked concrete drains, which continued to be responsible for a number of omplaints received.

(v) *Kerosene with 5 per cent D.D.T.*—2 gallons were used mainly for arrier spraying and occasionally as an anti-fly measure.

(vi) *Benzine with 10 per cent D.D.T.*—2,054 gallons were used to control osquito breeding along the margins of the reservoirs. Malaria vectors (*A. etifer*) were found breeding in the creeks of MacRitchie Reservoir. Extensive rophylactic oiling with D.D.T. in benzine had to be carried out by this epartment. The cost was recovered from the Water Engineer.

Before the World War II only the reservoir creeks near the Singapore olf Club were under control and no control measures were carried out in he other creeks as they were far away from human habitation.

During the year, owing to the vast housing development in the neighouring areas, a check for dangerous breeding in the creeks not under control as carried out and *A. letifer*, a malaria vector was found breeding. As a esult control measures were extended to this area involving the use of a large mount of 10 per cent D.D.T. in Benzine.

The use of this large amount of 10 per cent D.D.T. in Benzine for the Reservoir was of much concern to the department. In order to reduce the uantity of benzine used, a controlled experiment was carried out by weekly arval checking and oiling where necessary. For three months no breeding as found but at the end of the third month wide spread breedings of *. letifer* were found. In view of this it was decided to recommence regular reatment rather than the risk of malaria. This proves the importance of egular Anti-Malarial Control in MacRitchie Reservoir.

(vii) *Dieldrex 15.*—10$\frac{3}{4}$ gallons of this larvicide were used through the Swing-Fog machines to control adult mosquitoes.

10. *Filling in of low-lying areas.*—At the request of the Health Department to reduce the breeding grounds of *A. sundaicus*—a malaria vector, the extensive swamp at Bendemeer was filled by controlled tipping by the City Cleansing Department. This type of filling was continued at the tidal swamp off Kolam Ayer Lane.

11. *Notices.*—132 notices under the Destruction of Mosquitoes Ordinance were served during the year. As in the past year, the majority of these were served on building contractors.

12. *Anti-fly measures.*—In addition to the normal routine oiling, our oilers helped to carry out anti-fly measures on several occasions.

13. *Training.*—(i) Probationary Public Health Inspectors C. Chan, E. Saltoon and Tan Lian Choo were under training in the department on anti-mosquito measures and in the bionomics and taxonomics of Malayan mosquitoes.

(ii) During the year, Mr. K. Muthucumaru, Superintendent of the Anti-Mosquito Department, qualified as a licensed trainer in Training Within Industry Programmes, sponsored by the Ministry of Labour, Singapore. On his return he initiated a T.W.I. Training Course for supervisors of this Department from 12th April of the year. Thirteen members of the Staff were trained in the Job Relations Programme and six in the Job Instructions Programme. We are grateful to the Ministry of Labour for training Mr. K. Muthucumaru.

14. *Layout Plans.*—421 layout plans from the Planning Officer, Singapore Improvement Trust, and 119 plans for temporary dwellings issued by the City Architect and Building Surveyor Department were referred to this department for our opinion on the problem of drainage. In all these cases, the sites were inspected and comments given.

15. *Staff.*—Dr. Ng See Yook was transferred from the department on 10th June, 1957. Since then this department was directly under the charge of the Acting Deputy Health Officer (Dr. V. M. S. Thevathasan from 10th June, 1957, and Dr. Ng See Yook from 15th December, 1957).

16. *Labour.*—

Authorised labour force	607
Average monthly strength in payroll ..	574
Percentage of shortage	5%
Number of working days	313
Number of man-days taken as sick leave ..	5,949
Number of man-days taken as annual leave ..	3,145
Number of man-days taken as public holidays ..	7,379

440 different labourers took sick leave on at least one occasion during the year. This means that 76.7 per cent of the total Labour Force went on sick leave at least once during the year. The average number of man-days lost per labourer on account of sickness was 10.7 days.

17. *Miscellaneous.*—(i) This department has encountered a great deal of difficulty in the control of mosquitoes in the Tanojng Rhu Reclamation Area because of inadequate drainage and badly maintained drains. This is

Crown land used for resettling charcoal, firewood and timber merchants from Beach Road. The Government has been approached to take appropriate measures to improve conditions here.

(ii) A close liaison has been maintained with the Rural Health authorities, the Harbour Board, the Malayan Railway authorities and Army Department, all concerned with the control of mosquito breeding.

(iii) Due to Building and road development at Sungei Namley and Holland Park 689 yards of concrete drains and 683 yards of subsoil pipe lines were filled in. As a result malaria control measures have ceased in these areas.

(iv) Numerous unauthorised excavations for scrap metal by squatters at Kim Keat Road Area created a great problem to this department. These excavations are potential breeding grounds for *A. sundaicus*. Control was carried out at great expense in oiling. The City Engineer is assisting in filling the holes and work is still in progress.

SUMMARY OF WORKS AND COSTS FOR 1957

Particulars	Labour	MATERIALS			Totals
		Mason	Machine	Larvicide	
	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Major Works including $\frac{1}{3}$ cost of Store Labour ..	131,609 08	42,605 01	..	..	174,214 09
Patrol Works including Tidal Gate Labourers ..	128,174 44	..	..	..	128,174 44
MAINTENANCE					
1. Grass cutting, cleansing drains, including hire and benzine ..	351,216 96	..	3,933 17	..	355,150 13
2. Larvicidal works, trappers, oiling checkers and $\frac{1}{3}$ cost of Store Labour ..	98,636 48	..	..	75,335 59	173,972 07
3. Repairs including $\frac{1}{3}$ cost of Store Labour ..	52,994 28	34,356 38	..	..	87,350 66
4. Cleansing of drains by Contract Labour ..	132,000 00	..	..	..	132,000 00
Total ..	894,631 24	76,961 39	3,933 17	75,335 59	1,050,861 39
Cost of Haulage ..	..	..	..	..	28,049 33
Grand Total ..	..	..	..	..	1,078,910 72

I have the honour to be,
Sir,
Your obedient servant,
NG SEE YOOK, L.M.S. (S'pore), D.P.H. (Lond.),
Acting Deputy Health Officer.

APPENDIX *A*

Mosquito traps were set in the following areas with the results indicated below:—

Locality	No. of Nights	*A. mac.*	*A. sund.*	*A. letifer*	Other *Anophel.*	Others	Total
Tanjong Rhu Area ..	148	Nil	Nil	Nil	1	1,680	1,681
Bendemeer Area ..	148	Nil	Nil	Nil	6	2,479	2,485
Kim Keat Road Area ..	148	Nil	Nil	Nil	69	2,074	2,143
Guillemard Road ..	112	Nil	Nil	Nil	..	1,866	1,866
Kolam Ayer Lane ..	152	Nil	Nil	Nil	10	2,219	2,229
Kampong Potong Pasir ..	112	Nil	Nil	Nil	15	1,462	1,477
Dunman Road	40	Nil	Nil	Nil	..	608	608
Towner Road	40	Nil	Nil	Nil	2	502	504
		Nil	Nil	Nil	103	12,890	12,993

94 Anopheline females were trapped. In addition 12,890 adult mosquitoes were identified. Daily identification reports on adults were forwarded to D.A.D.A.H., Headquarters, Singapore Base District for information.

14*th January*, 1958.

Sgd. P. V. SAMUEL,
Laboratory Assistant (A.M.D.)

APPENDIX *B*

1,000 consecutive collections from common breeding places:—

Roadside concrete drain ..	233
Sullage concrete drain	37
A. M. Concrete drain	4
Concrete drain	163
Roadside earth drain	6
Sullage earth drain	4
Earth drain	83
A. M. Earth drain	1
Canal edges	3
Sewage excavations ..	3
Trench	1
Excavation for scrap metal ..	4
Stagnant pool	141
Grassy pool	27
Seepages	7
New building excavation ..	51
Lorry track	11
Vegetable pond	27
Fish pond	6
Tidal pond	10
Prawn Pond	6
Brick pond	1
Edge of Reservoir Creeks ..	45
Pond	5
Earth well	9
Concrete well	1
Brick well	1
Concrete holes	14
Septic tanks	4
Concrete tanks	7
Water stop-cock pit	4
Cess pit	1
Boats	9
Disused tin	23
Disused drum	15
Disused jars	19
Disused tyres	6
W. C. Pan	2
Coconut shell	2
Fish tank	1
Meatsafe cup	2
Tree hole	1
Total ..	1,000

Sgd. P. V. SAMUEL,
Laboratory Assistant (A.M.D.)

14*th January*, 1958.

APPENDIX *C*

8,802 collections of mosquito larvae were brought to the laboratory for identification. 11 of them contained larvae of *Anopheline sundaious*, ten contained larvae of *Anopheline maculatus* and 11 contained larvae of *Anopheline letifer*. The other 8,770 collections did not contain larvæ of *Anopheline letifer*. The other 8,770 collections did not contain larvae of malaria vectors.

The types of breeding places in which the larvae of malaria vectors were found were as follows:—

A. sundaicus

Tidal pools	2
Lorry track	1
Grassy pool	1
New building excavations	2
Tidal pond	1
Concrete tank	1
Concrete drain	2
Inlet pit of filter bed	1
Total	11

A. maculatus

In Singapore	
Seepage	
In Gunong Pulai Water Works	
Pool in Estate Ravine	4
Estate Reservoir	2
Seepages	2
Earth drain	1
Total	10

A. letifer

Edges of MacRitchie Reservoir creeks in different ravines	11

Sgd. P. V. SAMUEL,
Laboratory Assistant (A.M.D.)

14*th January*, 1958.

APPENDIX *D*

PERMANENT ANTI-MALARIAL WORKS CARRIED OUT DURING 1957

Anti-Malarial Area	MATERIALS USED																						Labour Cost	Material Cost	Remarks
	INVERTS										SLABS						SUB SOIL PIPES								
	21″		18″		15″		12″		9″		18″		15″		12″		8″		6″		4″				
	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	$ c.	$ c.	
4. Claymore	..	..	760	40	..	..	20	..	..	..	2,640	..	..	..	664	..	..	..	60	..	..	..	10,558 84	7,190 95	Re-construction of the main concrete Anti-Malarial Drain. Work completed.
7. Glencaird	530	..	250	35	..	..	15	..	..	..	2,595	..	..	..	..	..	..	..	20	..	..	..	8,991 22	5,951 62	Re-construction of the main concrete Anti-Malarial Drain. Work in progress.
9. Nassim and Dalvey ..	245	..	...		..	..	..		..	..	550	..	..	..	..	..	..	..	20	..	..	..	3,810 15	1,598 45	Re-construction of the main concrete Anti-Malarial Drain. Work completed.
15. Woodleigh	..	..	200		150	..	..	..	..	..	410	..	..	..	..	..	..	..	..	..	..	..	307 84	1,403 31	Re-construction of the subsidiary concrete Anti-Malarial Drain. Work completed.
29. Orchard Road No. 2 ..	..	..	110		..	..	..	..	..	..	240	..	..	..	..	..	..	..	..	..	..	..	963 01	620 36	Re-construction of the main concrete Anti-Malarial Drain. Work completed.
81. Mount Rosie	5	..	..		..	..	510		..	..	1,036	..	..	..	..	..	..	..	..	..	5	..	4,998 55	2,438 90	Re-construction of the concrete Anti-Malarial Drain. Ravine 3. Work in progress.
101. MacPherson Road ..	..	..	..		50	..	71		..		6,711	5,365	1,032	..	388	..	317	..	2,450	..	312	..	71,077 45	17,833 40	The main drain in the ravine, between Hindu and Christian Cemeteries was consolidated with inverts and slabs. Work in progress.
118. Island Golf Club Ravine ..	1,104		..		..		10		..		2,342	..	..	..	..	..	..	..	13	..	27	..	7,183 22	6,905 98	Re-construction of the existing concrete Anti-Malarial Drain. Work completed.
121. Brick Factory Ravine ..	..								..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,979 95	..	Four Ponds in Kampong Alexandra were filled in. Work completed.
135. Kim Keat Area ..	..				..						..	..	..	..	..	..	..	..	..	..	..	..	9,392 40	..	Filling up of unauthorised excavations. Work in progress.
172. Sommerville Ravine ..	..		15		15						24	..	..		..	..	..	..	..	..	..	..	4,485 54	194 40	Re-construction of the main concrete drain was completed.

DETAILS OF REPAIRS CARRIED OUT TO THE EXISTING ANTI-MALARIAL WORKS

Anti-Malarial Area	MATERIALS USED																						Labour Cost	Material Cost
	INVERTS										SLABS						SUB-SOIL PIPES							
	21″		18″		15″		12″		9″		18″		15″		12″		8″		6″		4″			
	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R		
4. Claymore	..	..	20	..	..	..	..	..	..	..	85	30	..	..	..	..	..	..	..	..	..	..	240 76	399 60
5. Cluny Ravine	..	..	40	..	..	..	..	..	..	..	10	70	..	..	..	..	..	..	..	..	..	..	98 00	122 66
7. Glencaird	5	35	..	..	..	..	..	..	..	..	50	60	30	..	..	..	..	..	5	..	..	..	304 85	201 45
8. Kings Road/Tyersal	..	..	75	..	..	..	..	..	..	..	90	148	..	..	..	..	..	..	..	..	..	..	316 26	341 95
9. Nassim and Dalvey	15	42	..	..	..	..	5	..	..	..	40	272	..	..	..	..	..	..	..	..	..	..	235 80	164 65
12. Scotts Road Railway	..	..	60	..	80	..	50	..	..	..	20	110	..	..	..	..	..	..	..	..	..	..	365 00	484 86
14. Watten Estate	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	100	..	..	109 00	8 00
15. Woodleigh Filters	..	..	..	..	..	..	..	..	..	..	20	20	..	..	..	..	..	..	..	..	..	..	24 05	34 76
18. Hammer & Co.	10	..	15	..	..	..	40	..	..	..	50	150	..	..	..	..	..	..	..	..	..	..	320 05	220 71
19. S. H. B. Ravine	85	..	..	..	..	..	5	10	..	..	195	315	..	..	..	..	..	..	6	5	..	..	818 90	607 56
22. Jervois Road No. 3	..	..	..	..	..	..	..	..	..	..	10	25	..	..	..	..	..	..	..	..	..	..	25 80	22 93
24. Leonie Hill	..	..	..	..	20	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34 40	47 76
25. Morse Road Ravine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	165	290	..	..	1,058 03	155 40
27. One Tree Hill	55	..	..	..	..	..	..	..	..	..	98	85	..	..	..	..	..	..	..	..	10	..	286 76	327 09
31. Paya Geyang	..	..	..	..	..	..	90	..	20	..	50	120	..	..	..	..	..	..	5	..	..	..	378 40	284 40
32. Radin Mas	62	35	90	35	..	..	90	45	45	15	618	975	..	..	..	..	..	..	..	..	..	..	2,908 22	1,771 24
35. Tiong Bahru	80	15	5	5	210	20	..	15	30	15	620	195	..	90	..	..	..	..	..	..	..	..	3,145 88	1,794 47
36. Wishart Ravine	..	..	..	..	..	..	60	30	..	..	65	..	..	..	..	..	..	..	60	40	90	55	674 89	229 85
37. Woodneuk	..	..	23	..	55	..	20	..	..	..	45	170	..	..	..	..	..	..	..	..	..	..	297 67	297 17
38. Alexandra Swamp	205	170	30	..	..	..	10	..	..	..	295	585	..	..	..	..	..	..	..	..	..	..	799 48	1,293 72
41. Gallop Road	..	..	..	..	10	..	..	..	..	..	10	52	..	..	..	..	..	..	..	..	..	..	48 00	50 30
42. Grange Road	67	15	..	..	..	..	..	..	..	..	20	210	..	..	..	..	..	..	..	..	..	..	302 28	270 83
46. Melrose	..	..	..	..	30	..	6	..	..	..	5	..	..	40	..	..	..	..	..	..	..	..	86 00	83 06
47. Newton Road Ponds	[illegible]	..	..	..	..	..	..	..	..	..	170	60	..	..	..	..	..	..	..	..	..	..	419 75	317 37
48. Rochalie	85	30	..	..	..	..	3	..	5	..	270	80	..	..	..	..	..	..	5	..	..	..	455 80	674 45
49. Sweetenham Road	30	..	..	..	..	..	..	..	..	..	90	116	..	..	..	..	..	..	..	..	..	..	173 90	248 95
50. Tanglin Barracks No. 1	40	..	20	..	..	..	30	..	..	..	60	62	..	..	..	..	..	..	..	..	..	..	264 78	326 66
51. Kampong Java Road	..	..	..	..	..	..	30	10	5	..	20	..	5	95	..	..	..	..	..	..	..	..	104 40	114 45
52. Tanglin Barracks No. 3	15	..	150	..	..	..	..	..	..	..	50	20	..	..	..	..	..	..	..	..	..	..	77 50	161 25
55. Fort Canning	..	..	..	..	..	..	140	15	..	..	20	..	..	..	..	..	..	..	..	..	..	..	229 35	260 50
57. Bukit Brown Golf Club	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	70	475	..	..	..	..	2,489 96	77 80
58. Kampong Java Area	10	..	..	70	25	..	..	..	..	..	195	250	..	55	..	..	..	..	..	..	..	..	501 80	499 51
59. Henderson Road	..	..	..	..	..	..	4	15	..	..	30	70	8	..	..	..	..	..	..	..	..	..	159 60	71 10
67. Spottiswoode Park	10	10	..	..	..	..	..	..	..	..	100	350	..	..	..	..	..	..	..	..	..	..	614 20	240 01
71. Tanglin Post Office	..	..	60	..	30	..	..	..	..	..	20	5	..	40	..	..	..	..	..	..	..	..	120 40	210 13
73. Mandalay Road	..	..	..	..	..	..	25	45	..	..	25	80	..	..	..	..	..	..	..	..	..	..	129 74	105 67
75. Government Hill	..	..	..	..	..	..	..	..	..	..	10	16	..	..	..	..	..	..	..	..	..	..	23 10	14 90
79. Serangoon Village	5	..	..	..	..	..	40	..	..	..	50	130	..	..	..	..	..	..	..	..	..	..	222 35	178 15

DETAILS OF REPAIRS CARRIED OUT TO THE EXISTING ANTI-MALARIAL WORKS—*continued*

Anti-Malarial Area	MATERIALS USED																						Labour Cost	Material Cost
	INVERTS										SLABS						SUB-SOIL PIPES							
	21″		18″		15″		12″		9″		18″		15″		12″		8″		6″		4″			
	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R		
81. Mount Rosie	15	..	20	..	..	..	..	..	..	..	70	50	..	..	..	..	..	..	..	..	..	..	259 65	211 32
85. Ewe Boon Road	..	..	105	..	..	..	..	..	..	..	80	212	..	..	..	..	..	..	..	..	..	..	541 66	451 55
89. Silat Road	..	..	17	..	..	..	..	..	5	10	75	115	..	..	..	..	..	..	..	..	..	..	319 94	177 73
91. Holland/Bukit Timah ..	160	..	65	..	..	..	..	..	..	..	360	488	..	..	..	..	..	..	..	..	..	..	997 33	1,298 49
100. Adam Park	..	..	220	165	..	..	20	..	..	..	175	405	..	..	..	..	..	..	..	..	..	..	1,103 12	725 48
101. Joo Seng Road	..	..	..	..	..	..	10	..	10	..	45	80	..	..	..	..	..	..	..	..	..	..	344 28	151 38
104. Margate Road (Katong) ..	..	..	..	..	..	..	5	25	..	..	..	..	15	..	..	..	..	..	..	..	..	..	64 47	26 71
105. Bukit Permai	..	..	15	..	..	..	..	..	..	..	40	..	..	..	..	..	..	..	..	..	..	..	486 27	141 55
106. Jalan Besar	..	..	..	..	..	..	15	40	..	..	15	80	..	..	..	..	..	..	..	..	..	..	238 16	60 25
107. Wayang Satu	10	50	80	135	50	..	60	..	10	..	190	370	..	..	..	..	..	..	..	..	..	..	994 75	765 05
108. Berlayer Village	..	..	..	..	70	95	..	..	..	..	140	190	..	..	..	..	..	..	..	..	..	..	699 92	403 30
109. Mount Pleasant	5	..	..	..	..	..	7	..	..	..	30	..	..	..	..	..	..	..	60	..	..	..	472 46	113 50
110. McRitchie	65	..	80	..	..	..	..	..	..	..	235	440	..	..	..	..	..	..	..	..	..	..	955 60	809 17
115. Alexandra Road Ravine ..	82	60	95	45	23	20	15	..	..	..	365	252	..	..	..	..	..	..	..	..	..	..	1,653 50	1,211 07
116. Sungei Whampoa	35		45	..	5		110	..	10	..	105	310	..	..	200	..	..	..	..	..	..	..	1,542 26	960 67
117. Telok Blangah Road Ravine ..	200	165	50	..	10	70	120	165	..	..	700	740	12	..	..	..	..	..	20	30	25	..	3,949 45	2,498 21
120. Kim Seng Road	5	..	..	..	..	..		..	..	..	130	80	..	..	..	..	..	..	..	..	..	..	269 45	241 38
124. Cemetery Ravine	..	..	..	..	..	..	56	..	..	..	6	..	..	..	..	..	..	..	..	..	..	..	56 53	112 66
129. Sungei Namley	..	..	..	..	70	40	20	..	..	..	10	40	90	150	..	..	..	..	..	..	..	..	294 10	292 50
130. Mount Washington	115	15	65	5	25	10	45	20	8	5	890	420	20	40	..	..	..	..	..	..	..	..	3,746 36	2,368 73
133. Aljunied Road	..	..	1	..	88	265	95	90	..	..	167	775	5	55	..	..	..	..	..	..	..	..	1,371 66	1,094 33
134. Bendemeer	..	..	..	..	5	..	10	25	..	..	5	45	..	..	..	..	..	..	..	..	..	..	82 80	44 91
135. Kim Keat Road Ravine ..	..	..	..	..	..	..	40		..	..	215	360	..	..	..	..	..	..	..	..	..	..	523 48	475 42
136. Boon Teck Road	..	..	..	5	5	25	40	40	35	25	30	436	..	60	..	..	..	..	..	..	..	..	650 08	377 30
137. Jalan Rajah	..	..	20	..	..	..	50	105		..	50	285	..	..	..	..	..	..	..	..	..	..	406 39	295 20
138. Ah Hood Road Ravin ..	55	20	15	135	..	..	85	75	20	..	130	415	..	..	..	..	..	..	205	20	88	..	1,288 42	926 45
142. Thomson Road Ravinee No. 2	..	..	60	45	..	..	15	..	..	..	86	345	..	..	..	..	..	..	..	..	..	..	467 70	340 40
145. Hindu Cemetery Ravine No. 2 ..	..	..	27	55	..	..	..	..	..	..	45	120	..	..	..	..	..	..	13	100	..	..	473 50	193 71
148. Serangoon Road Ravine . ..	5	60	10		..	..	10	..	..	..	110	370	..	50	..	..	..	..	..	..	..	..	449 34	287 13
151. Hokien Cemetery Ravine No. 1 ..	..	..	35	75	15	..	25	..	..	..	65	370	..	..	..	..	..	..	..	..	..	..	404 28	274 55
153. St. Michael's Road	..	..	3	..		..	10	100	10	..	60	406	..	..	..	..	..	..	..	..	..	..	1,712 73	365 03
156. Thomson Road Ravine No. 3 ..	..	..	..	..	25	25	..	..	..	..	20	80	..	..	..	..	..	..	..	..	..	..	117 78	89 90
157. Christian Cemetery	20	40	10	..	5	15	..	..	..	..	25	145	..	..	..	..	..	..	..	..	..	..	244 62	157 15
162. Kampong Bintang Area	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	55	..	..	151 14	27 00
164. Woodsville Road	..	..	..	..	..	..	20	110	..	..	..	..	..	..	..	..	..	..	..	..	..	..	82 44	31 00
170. Braddell Road Ravine 3, 4 and 6	..	..	20	25	..	35	..	40	..	20	65	355	..	..	..	..	..	..	..	..	..	..	449 24	203 98
171. Bukit Ho Swee	..	..	..	..	55	..	..	..	30	..	75	40	..	..	..	..	..	..	..	..	..	..	292 40	390 86
172. Sommerville Ravine	..	..	..	..	..	..	15	..	..	..	40	90	..	..	..	..	..	..	..	..	..	..	109 52	112 41
183. Nameley Avenue	..	..	..	..	..	..	30	..	..	..	60	..	..	..	..	..	..	..	..	40	..	..	110 43	168 81

APPENDIX *F*

KAMPONG SANITATION WORK FOR 1957

Kampong	MATERIALS USED												Labour Cost	Material Cost	Remarks
	INVERTS					SLABS			S.S. PIPES			MISCELLANEOUS			
	21″	18″	15″	12″	9″	18″	15″	12″	8″	6″	4″				
													$ c.	$ c.	
South															
Kampong Silat	6	8	..	175	115	50	10	100	..	..	..		18,395 21	898 58	General Maintenance
Kampong Silat (S.I.T.) ..	..	..	..	..	..	..	..	..	..	..	..		1,309 40	..	General Maintenance
Kampong Mount Washington ..	..	..	12	135	60	40	50	..	..	..	..		3,683 90	557 93	General Maintenance
Kampong Alexandra	18	12	..	265	95	126	10	..	..	..	..		3,821 95	932 51	General Maintenance
Kampong Bukit Permai ..	..	..	..	..	..	..	..	..	..	..	..		1,314 60	..	General Maintenance
North															
Kampong Geylang Serai ..	..	..	..	10	..	20	..	..	..	..	..		21,895 55	76 49	General Maintenance
Kampong Amber	..	..	..	..	..	..	..	..	..	..	..		2,887 95	..	General Maintenance
						Stand Pipes									
South	..	..	..	40	10	..	..	20	..	..	..		980 92	456 69	Construction of new drainage and re-construction of bases for 10 New Stand Pipes and 30 Existing Stand Pipes.
North	..	..	..	100	..	10	..	..	..	..	..		2,067 64	859 70	

ANNUAL REPORT ON THE CITY ANALYST'S DEPARTMENT FOR THE YEAR 1957

THE ANALYST DEPARTMENT gives scientific advice and carries out the necessary chemical analysis for all the departments of the City Council. The volume of this work has increased steadily over the last few years. This increase is not surprising in view of the continually increasing applications of science in almost all fields of human activity. The increase is probably also due to wider appreciation that scientific methods are indispensable to the efficient and economic conduct of the executive services of local government.

During the year 1957 a total of 28,434 samples were received and reported on. This is a record and it exceeds the number examined during the previous year by 427. The samples were submitted by the departments of the City Council, and includes also a large number sent in by commercial firms. The samples can be classified according to their source of origin as follows:—

Water Department	16,703
Gas Department	61
Electricity Department	4
Engineer's Department:—	
Sewerage Section	5,118
Sanitary Section	11
Roads, Bridges and Drainage Section	15
Stores and Workshops	15
Architect and Building Surveyor's Department	3,066
Health Department	1,218
Cleansing Department	1
Veterinary Department	1
Commercial firms	2,221
Total	28,434

It is not possible in the above list to show the amount of time devoted by senior officers of the Department to the consultative and advisory aspects of the work of the Department. Such duties have been carried out both in the main office and at the site. A consequence of the numerous duties of the City Analyst is that he spends a good proportion of his time on various committees and inter-departmental consultations. A general indication of the nature of the samples examined and of the diverse consultative and advisory duties carried out for the various departments of the Council is given below.

WATER DEPARTMENT

The following samples were analysed for the Water Department:—

Water samples taken at various stages during treatment	11,523
Water from camp supplies	1,458
Raw water	3
Treated water from Clear Water Tanks	45
Water for fluorine test	2,817
Water for arsenic test	1
Water from mains, taps, etc.	10
Deposits, sediments, and sludges	5
Carried forward	15,862

Brought forward ..	15,862
Water-treatment chemicals, etc. (sulphate of alumina, hydrated lime, sand, sterilizing tablets, caustic soda, sodium silico-fluoride, pig lead)	28
Urine for fluorine test	138
Indicator solutions	381
"Alfloc" Hydrometer for calibration ..	1
"B.T.L." Turbidimeter for calibration ..	2
Boiler Water	291
Total ..	16,703

During the year 1957 the experience gained over the last few years in the use of chemicals in water treatment was applied with very good results to extending full chemical treatment to the partially-treated waters of the Singapore supply. At the end of the year the water from all the four works received full chemical treatment. The excellent chemical quality of the water was maintained throughout the year. The average figures of the daily tests on raw waters and treated waters and the monthly tests on clear water tank samples are given in Tables *A*, *B* and *C* respectively.

At Woodleigh Filters chemical treatment with lime and alum was introduced late in 1956, the treatment in use up to that time being that involving slow sand filters. Initially there was some difficulty in obtaining a suitable "floc". This short-coming was remedied by changing the points of dosing of the chemicals to introduce the alum ahead of the lime. The resulting "floc" was good and the treated water was very clear in appearance. This works supplies water to the populous districts of Geylang and Katong. In previous years there were incessant complaints from residents of these areas regarding coloured and dirty waters, but since the introduction of chemical treatment at this works such complaints have ceased completely. The great improvement in the quality of the water can be seen from the following average results:—

Average Results of Woodleigh Clear Water Tank Samples in parts per million.

Year	1951	1952	1953	1954	1955	1956	1957
Colour (Hazen Units)..	14	18	18	12	15	5	5
Iron	0.25	0.40	0.48	0.32	0.55	0.24	0.23
B.O.D. in 3 days ..	0.85	0.98	0.65	0.90	0.60	0.55	0.33

The treatment used at Tebrau Works over the greater part of the year was that employing "activated silica" in conjunction with small doses of lime and alum. During periods when sodium silicate was in short supply the conventional lime-alum treatment was used. At the Bukit Timah works the water, which derives from MacRitchie Reservoir, was treated during the year with lime and alum. The Gunong Pulai Works receives water from Pontian Reservoir as well as from Gunong Pulai itself. Chemical treatment was applied to only one of these supplies, but since November 1957 the water from both sources received full chemical treatment.

Fluoridation of the Singapore water supply as a means to reduce caries in the teeth of growing children was started at Bukit Timah Filters in May 1956, and was extended to Woodleigh Filters in February 1957, to Tebrau Water Works in May 1957, and finally to Gunong Pulai Works in December 1957. The waters from these works are fluoridated with sodium silicofluoride to the level of 0.7 part per million of fluorine. This dose was decided on after paying due regard to the universally accepted optimum dose for temperate countries of 1 part per million and to the higher intake of fluids in the tropics.

As a measure for safe-guarding the health of workers handling fluoride chemicals the urines of labourers at the water works were regularly tested for fluorine content. During the year 138 tests were carried out and the average fluorine content was found to be 1.04 parts per million.

The feed-water for the boilers at Woodleigh Filters was treated with a proprietary tannin extract, but since November sodium phosphate has been used in the treatment of the water.

GAS DEPARTMENT

The following samples were analysed:—

Gas Coal	41
Boiler Water	14
Trisodium Phosphate	1
Calgon	1
Oxide	4
	61

The gas coals analysed were taken from deliveries to the Gas Works. The coals were tested to see if they complied with specification and if they possessed the required gas-producing properties. This is an example of the value of analysis in ensuring that the materials bought by the Council are able to serve their purpose and are not of inferior quality.

The condition of the boiler water which was treated with phosphate was satisfactory.

Four samples of iron oxide were examined to assess their efficacy in removing sulphur compounds from coal gas.

ELECTRICITY DEPARTMENT

The following samples were analysed:—

Copper Strips	1
Sea Water	1
Corrosion Product	1
P.V.C. Carbon Black	1
	4

The sea water and corrosion product were submitted in connection with corrosion of the condenser cooling boxes at Pasir Panjang Power Station. The corrosion was caused by sulphate-reducing bacteria, and remedial measures were recommended, which have since been reported to be effective.

The copper strips were also submitted to ascertain the cause of corrosion, which was found to be due to the straw packing and therefore not likely to spread further.

ENGINEER'S DEPARTMENT

Sewerage Section

The following samples were analysed:—

Routine sewages, sludges, top-waters and effluents	3,684
Septic Tanks	1,294
Sewages for detergent content	23
River Waters	83
Sewer water and Sub-soil water for sea-water..	7
Soil from Ulu Pandan..	19
Ground water for sulphate-reducing bacteria..	2
Lining of outfall conduit for sulphur content ..	3
Sand	1
Granite	1
Lead acetate paper	1
	5,118

Routine examination of sewage samples from the two sewage disposal works run by the City Council, one at Alexandra Road and the other at Kim Chuan Road, was carried out regularly throughout the year. The effluent from Alexandra Road Works discharging into Singapore River was of somewhat poorer quality than that of the previous year. The average results and ranges are given in the following table, and for comparison results of the last four years are also given:—

Average Analysis of Alexandra Road S.D.W. Effluent in p.p.m.

——	Range 1957	Average 1957	Average 1956	Average 1955	Average 1954	Average 1953
Free and Saline Ammonia ..	2/48	14.7	10.9	10.7	10.2	10.6
Albuminoid Ammonia ..	.32/12.0	3.0	1.9	2.3	2.4	2.2
Oxygen absorbed in 4 hours ..	4.1/26.8	13.3	11.0	11.0	11.0	12.0
Biochemical Oxygen Demand	9.4/69.4	27.5	17.5	19.0	19.0	20.0
Total Solids	212/2060	704	755	874	868	812
Suspended Solids ..	5/82	28	21.5	22	21	24
Nitrates (as N)	a/10	0.4	1.0	1.0	2.0	3.0
Chlorides (as Cl) ..	80/1050	262	270	310	290	270
pH	7.2/7.9	7.4	7.4	7.4	7.4	7.5

River waters taken at several points along Singapore River were analysed approximately once every six months. The results of analysis invariably showed that there is present in Singapore River a large amount of polluting material. By comparison the effluent from Alexandra Road Sewage Disposal Works is only about half as strong as the main body of water in Singapore River. This pollution is considerably more than the river can cope with. In consequence there is complete depletion of any dissolved oxygen present in the water. Under the anaerobic conditions produced sulphate-reducing bacteria thrive, generating large volumes of hydrogen sulphide gas, which being highly toxic gives rise to a definite health hazard. The only practical way to eliminate this hazard is to stop the dumping into the river of all industrial effluents, wastes from food factories, nightsoil and rubbish.

The effluent from Kim Chuan Road Sewage Disposal Works discharging into Serangoon River has been deteriorating in quality year by year as the plant is heavily overloaded. The average results and the ranges are given below together with the averages for the last four years:—

Average Analysis of Kim Chuan Road S.D.W. Effluent in p.p.m.

——	Range 1957	Average 1957	Average 1956	Average 1955	Average 1954	Average 1953
Free and Saline Ammonia ..	16/44	24.9	22.4	20.9	21.0	22.2
Albuminoid Ammonia ..	2/12	5.6	4.9	5.1	3.9	4.5
Oxygen absorbed in 4 hours ..	15.5/48	29.7	33.5	28.0	23.0	26.5
Biochemical Oxygen Demand	23.6/127	76.2	72.5	63.5	44.0	49.0
Total Solids	282/1624	628	670	701	641	654
Suspended Solids ..	10/101	33	36	36	30	41
Nitrates (as N)	a/2	a	a	a	a	a
Chlorides (as Cl) ..	100/720	200	190	200	180	200
pH	7.1/7.5	7.3	7.3	7.4	7.6	7.6

The poor condition of the effluent flowing into Serangoon River had its effect on the cement lining of the outfall conduit. This had crumbled in places and analysis of three samples of conduit lining and scrapings showed large amounts of calcium sulphate. The presence of this material showed that sulphides in the effluent had been oxidised by aerobic bacteria in the conduit lining to sulphuric acid which had caused the breakdown of the cement.

Nineteen samples of soil taken at the site of the proposed sewage disposal works at Ulu Pandan were tested to detect any aggressive properties inherent in the soils. Two samples of ground water from Queenstown were tested for the presence of sulphate-reducing bacteria.

With the growing popularity of synthetic detergents for washing, foaming of the aeration tanks was experienced at Kim Chuan Road Sewage Disposal Works. Determinations on both Kim Chuan Road and Alexandra Road sewages showed that the amount of detergents was about 4 to 5 p.p.m. in the crude sewage of both works, and about 2 to 3 p.p.m. in the final effluents.

Besides Singapore River, waters from the following canals and rivers were examined: Stamford Canal, Rochore Canal, Kalang River, Sungei Whompoe, Geylang River, Katong Canal, Siglap Canal, Sungei Blukar and Serangoon River. The results indicate that these rivers and canals were increasingly being used as sewers for the disposal of filth and rubbish.

The City Council also maintains a number of small sewage purification plants, mostly private installations situated in unsewered areas. Regular samples were taken from these plants for analysis—usually one sample of effluent and one of the septic tank liquor. The number of samples examined has been increasing over the last few years as can be seen from the following figures:—

1955	387 samples
1956	621 samples
1957	1,294 samples

In general, the more regular sampling and maintenance has resulted in a raising of the average standard of the effluents.

Sanitary Section

The following samples were analysed:—

Soil	7
Cast Iron Pipes	2
"Vulcathene" Pipe	1
Rubber Joint Ring	1
	11

The samples of soil and cast iron pipes were submitted in connection with investigations into the corrosion of a night-soil main along Rochore Canal Road. The deterioration of the pipes was caused by sulphate-reducing bacteria, which were found to be prevalent in the soil in this area. The "Vulcathene" pipe was tested for resistance to organic solvents, and the rubber joint ring for British Standards Specification tests.

Roads, Bridges and Drainage Section

The following samples were analysed:—

Sand	4
Ground Ashes	1
Fillers	2
Granite	2
Rocks	3
Bridge Girders	3
	15

The sand, ground ashes, fillers and granite were tested for their suitability for use as road building materials. The rocks were received for identification. The bridge girders were taken off the old Bencoolen Street Bridge and were tested to determine whether they were wrought iron or mild steel.

City Stores and Workshops

The following samples were analysed:—

Soap	1
Cement	1
Sulphate-resisting Cement	1
Sand	2
Coke	2
Boiler Water	1
Gland Seal Ring	1
Used Oil from hydraulic system	5
Ferro-silicon	1
	15

The tests carried out for the Stores and Workshops were mainly for compliance with specification for various items of engineering stores. One sample of sulphate-resisting cement was tested for its suitability for use in lining the outfall conduit at Kim Chuan Road sewage works. This conduit had deteriorated on account of the action of sulphates and other sulphur compounds present in the final effluent.

The gland seal ring and used oil were tested in connection with a failure in the hydraulic system of a hoist.

ARCHITECT AND BUILDING SURVEYOR'S DEPARTMENT

Swimming Pool Waters:—	
from Mount Emily Pool	832
from Yan Kit Road Pool	1,097
from Farrer Park Pool	1,051
Van Kleef Aquarium Water	86
	3,066

With the opening of the Farrer Park Swimming Pool the City Council now runs three swimming pools for public use, the other two being at Mount Emily and Yan Kit Road. These pools are filled with fresh water and daily chemical tests were done on the waters, which were maintained in very good condition throughout the year.

The Architect's Department also sends in regular samples of fresh water and salt water from Van Kleef Aquarium for examination.

HEALTH DEPARTMENT

The samples received from the Health Department, numbering 1,218 altogether, were mainly samples of food and drugs. These were submitted either under the Sale of Food and Drugs Ordinance or else in connection with the licensing of food factories.

The number of formal samples received under the Sale of Food and Drugs Ordinance was 658, of which 117 were found to be adulterated, below standard or otherwise defective, and appropriate certificates were issued for these samples. The proportion of unsatisfactory samples was 17.8 per cent as compared to 18.5 per cent for 1956. Details of the adulteration and other irregularities found are given in Table *D*.

Routine tests were done regularly on samples of food and beverages manufactured locally in premises licensed by the Health Officer. These samples were tested for general compliance with standards, but more especially for metallic contamination, saccharin and prohibited preservatives. These foods comprise mainly soda water, soft drinks, syrups, soya bean sauce and various condiments. Samples of anti-malarial oils, insecticides and well waters were also examined.

The range and variety of the samples examined are given in the following lists:—

Food (1,073 samples)

Milk and Milk Products (including milk, evaporated milk, sweetened condensed milk, homogenised milk, powdered milk, skimmed milk powder, buttermilk powder, infants' food, butter)	333
Beverages (including soda water, aerated water, popsicles, ice-cream, cordials, tea, coffee, coffee mixture, rum, whisky, brandy, beer and stout)	389
Spices (pepper, coriander, turmeric, chilly powder, cloves, ginger, horse-radish, spinach, Chinese star anise)	27
Sauces (soya bean sauce, fish sauce, chilly sauce, tomato sauce, gourmet powder)	35
Vinegar (malt-, rice-, chilly-, wine- and distilled vinegars, artificial vinegars, french dressing)	45
Food essences and colours	4
Cooking oils and fats	24
Fresh fruits	167
Canned food (fruits, liquid apple, salted berries, vegetables, green peas, tomato juice, salted vegetables, bean curd, coconut butter, cream rice, meat and ham)	39
Other foods (milk loaf, sweets, apple rings, pig's stomach)	10

Drugs (117 samples)

Drugs, comprising B.P. drugs, proprietary medicines and native medicines	117

B.P. and other official drugs examined included tincture of iodine, boric ointment, zinc oxide ointment, calcium gluconate tablets, Vitamin B1 tablets, Vitamin C tablets, nicotinic acid tablets, hydrogen peroxide solution, ephedrine hydrochloride tablets, potassium bromide tablets, friar's balsam, aspirin tablets, A.P.C. tablets. Amongst proprietary medicines analysed were several well-known analgesics and reliefs for headache.

Other Samples (28 samples)

Antimalarial Oil	6
Benzine for use in D.D.T. sprays	2
Insecticide for identification	1
Mosquito Destroyer	4
Chemical	1
Well water, drain water, etc.	9
Atmosphere	1
Children's Toys	4

252 samples of fresh milk sold by itinerant vendors were examined and 36 were found to be below standard, which is 14.3 per cent of the number submitted. Skimmed milk powders were tested to see if they contained adequate colouring as required by the Food and Drugs Regulations.

Serious metallic contamination was not met with in soda waters and aerated waters. Most of the samples examined fell within the limits allowed of 0.2 part per million lead and 2 parts per million copper. Coffee and coffee mixtures continued to be adulterated; some 30 per cent of the samples submitted were found to be unsatisfactory.

The use of the word "milk stout" to describe a beverage made partly from lactose was considered to be misleading. The importers concerned agreed with our recommendation to withdraw the use of this description.

Under the Food and Drugs Regulations spices may not contain any added material, but many samples examined were found to have fair amounts of rice starch.

Imported fresh fruits were analysed regularly for arsenical spray residues. Occasional samples were still found with undesirable contents of arsenic.

The City Analyst is a member of the Food and Drugs Committee, which sits from time to time to consider aspects of Food and Drugs legislation. The new Regulations which were under consideration for some time were finally published by the Minister of Health on 4th October, 1957. These new Regulations replaced the old set made in 1947, and they incorporated some of the provisions relating to food hygiene which were formerly contained in the Food By-laws made under the Municipal Ordinance.

CLEANSING DEPARTMENT

One set of lead acetate papers was prepared for use in the detection of hydrogen sulphide in sewers.

VETERINARY DEPARTMENT

One sample of dog viscera was analysed for poisons.

COMMERCIAL FIRMS

A total of 2,221 samples were received and reported on. The samples may be classified as follows:—

Essential Oils	72
Vegetable Oils	604
Ores	50
Metals and Alloys	11
Food	327
Chemicals	71
Local Produce	236
Damaged Goods	52
Miscellaneous	798
	2,221

A special feature of this work was the large number of samples received from many places outside Singapore. The foreign flavour of these samples may be sensed from the following account of some of the more interesting samples analysed.

The quest for drinking water in distant lands brought many requests for advice on water treatment. Water from Johore and Pahang in the Federation of Malaya have been received for analysis. From Borneo water from Labuan, Tawau and Jesselton were examined. Water samples have also been received from Pakning in Sumatra, and from as far as Laos in Indo-China.

Several samples of concrete, including one from Borneo, were analysed for composition. The sample from Borneo was found to contain sea-shells, which were presumably used as a substitute for sand.

A sample of concrete, taken from a box-like structure suspected to have contained gold bars, from a cargo vessel was tested to determine the age of the concrete. This was arrived at by determining the "combined" moisture content and the specific gravity of the cement component.

The Services continued to make use of the testing facilities of the Department. The work done for the Army and the Royal Air Force included advice on chemical treatment of swimming pool waters, and on the use of a bituminous roofing material.

The Singapore Improvement Trust submitted several samples of cement paint for analysis. One of these was paint mixed ready for use, and the other paint scraped off a wall. In both cases the paints were found to contain substantial admixtures of lime.

Technical advice on industrial processes, including several cases of metallic corrosion, were given to commercial firms. A brickworks in Borneo submitted samples of brick which were covered with a white bloom. This was ascribed to the clay containing a large amount of soluble salts, and appropriate remedial measures were advocated.

The full range of the samples examined for commercial firms is given in the following lists:—

Essential Oils:

Patchouli, Citronella, Palmarosa, Nutmeg, Canaga and Vertivert.

Vegetable Oils:

Palm, coconut, and groundnut oils; palm oil sludge, bleached palm oil and vegetable fat.

Ores:

Ores of iron, copper, and titanium; graphite, bauxite and amang.

Metals and Alloys:

Aluminium, refined tin, brass turnings, unknown metal for identification.

Food:

Fresh milk, reconstituted milk, "creamy" milk, "Gold Top" milk, chocolate milk, evaporated milk, sweetened condensed milk, "Lactogen" powdered milk, butter, ice-cream mix, orange squash, orange drink, blackcurrant cordial, pineapple juice, coffee seeds, tea, tomato sauce, monosodium glutamate, essence of chicken, sweets, rice flour, wheat flour, tapioca flour, "Scotts" Baby Cereal, rice, milk loaf, cuttle fish, smoked eel, canned peas, canned mushrooms.

Chemicals:

Hydrochloric acid, formic acid, phosphoric acid, carbon dioxide gas, sulphur dioxide, caustic potash, monoethanolamine, glycerine, trisodium phosphate, calcium carbonate, microcalcite, copper sulphate, hydrogen peroxide, unknown crystals for identification.

Local Produce:

Jelutong, centrifuged latex, desiccated coconut, copra, soap, pepper, illipenut cake, copra cake, derris root, gum benjamin, patchouli leaves, cube gambier, cutch, dragon's blood, kapok seed.

Damaged Goods:

Copra, rubber, sugar, sugar and gunny sacking, tamarind, sweetened condensed milk, canned mushrooms, processed peas, canned grapes, rice bran and gunny sacking, horn combs, cotton grey drill, nails, asbestos fibre, galvanised sheathing wire, steel bars, mild steel bars, galvanised iron wire, galvanised plain sheets, corrugated galvanised iron sheets, channel bar and scraping, electric cable and paper packing, earthen ornaments, waterproof paper, scrapings, wrapping paper, stained cartons, pieces from wooden case, cotton bag and cardboard carton, wrapping material, cardboard box.

Miscellaneous:

Swimming pool water, stream water, raw water, well water, water from hot springs, treated water, distilled water, sea water, brine;

Wheat pollard, rice bran, animal feed stuff, fish meal, fertilizer, animal viscera;

Chinese medicine, vitamin tablets, blood tonic, crystalline substance for identification, liquid dye, beef tallow, soap, "Brylcream";

Fuel oil, lubricating oil, anthracite, coal, oil from ship, petrol/lubricating oil, antimalarial oil, bitumen, creosote, boiler sludge, sludge, deposit;

Welding rods, rubber roofing sheets, brick, concrete, cement, sand, cement paint, powdered kaolin, mortar, cement renderings, marble granules, plaster of wall, metal rods, galvanised wire, galvanised iron pipes, scrapings of cement paint, galvanised cable sheathing wire, iron pipes, sheet glass, glazed pipes;

Filter bed medium, sewage, atmosphere.

COMMITTEES

The City Analyst, on official nomination, served on the following committees:—

1. Corrosion and Tropicalisation Committee of the Pan-Malayan Scientific Advisory Council. This Committee has completed its investigations and its findings were published on 31st July, 1957.
2. Advisory Committee on Fluoridation.
3. Food and Drugs Committee.

STAFF

Mr. Lim Chin Kuan, Deputy City Analyst, returned from vacation leave on 2nd February, 1957. During his leave he obtained the Post-Graduate Diploma in Applied Chemistry (Branch *E*) of the Royal Institute of Chemistry.

Mr. Chia Hong Hoe, Assistant Analyst, returned to Singapore on 28th August, 1957, after undergoing two years' post-graduate training in the United Kingdom. He obtained the M.Sc. degree of the University of London and the Diploma of the Imperial College, London.

Mr. Swee Lian Choo, retired Laboratory Officer, who was re-engaged on a temporary basis, left the Department in September 1957.

The writer proceeded to the United Kingdom on vacation leave on 16th May, 1957, and returned on 9th December, 1957. During his absence Mr. Lim Chin Kuan acted as City Analyst; Mr. Tan Tong Teck acted as Deputy City Analyst till 27th August, 1957, and Mr. Chia Hong Hoe acted in the same capacity from 28th August, 1957.

In concluding this report I should like to express my appreciation of the willing help and loyal support given by the whole staff, without which the volume of work could not have been accomplished. In addition I should like to acknowledge with gratitude the assistance given by members of the secretarial and clerical staff of the Health Department. I would like particularly to record my appreciation and thanks to Mr. Lim Chin Kuan, Deputy City Analyst, to whom I am indebted for the preparation of this report.

T. A. SPILLANE,
M.SC., F.R.I.C., F.I.C.I., P.A.I.W.E.,
City Analyst.

TABLE *A*

RAW WATERS

AVERAGES OF DAILY ANALYSIS FOR YEAR 1957
(PARTS PER MILLION)

Parts per million	PONTIAN RESERVOIR		GUNONG PULAI RESERVOIR		MACRITCHIE RESERVOIR		PEIRCE RESERVOIR		TEBRAU RIVER	
	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Nitrite Nitrogen (as Nitrogen) ..	a	..	.. NO SAMPLE	..	a	..	a	..	a	..
Carbon Dioxide	3.3	1.7/5.4	..	..	1.5	1.1/1.9	1.4	1.2/1.9	4.1	3.2/5.0
Total Alkalinity (as $CaCO_3$) ..	4.5	4.0/5.4	..	..	2.0	2.0/2.2	2.0	1.8/2.1	2.6	2.0/4.8
pH Value	6.3	5.9/6.7	..	..	6.2	6.1/6.4	6.1	6.0/6.3	6.0	5.7/6.4
Iron	.40	.23/.76	..	..	.35	.19/.48	.56	.37/.74	.41	.28/.60
Colour (Hazen Units)	19	13/25	..	..	16	7/27	21	12/28	37	20/49

TABLE *B*

PURIFIED WATERS

AVERAGES OF DAILY ANALYSIS FOR YEAR 1957

(PARTS PER MILLION)

Parts per million	GUNONG PULAI		BUKIT TIMAH		WOODLEIGH		TEBRAU	
	CLEAR WATER TANK		CLEAR WATER TANK		CLEAR WATER TANK		CLEAR WATER TANK	
	Average	Range	Average	Range	Average	Range	Average	Range
Nitrite Nitrogen (as Nitrogen) ..	a	..	t	..	a	..	a	..
Carbon Dioxide	0.03	a/0.2	0.5	0.2/0.8	0.7	0.5/1.0	0.15	a/0.4
Total Alkalinity (as $CaCO_3$) ..	10.9	9.3/13.0	9.5	8.2/10.6	7.6	7.0/8.6	12.7	11.2/15.0
pH Value	8.6	8.5/8.8	7.6	7.4/7.9	7.3	7.2/7.4	8.5	8.1/8.9
Free Chlorine	0.42	0.34/0.52	0.29	0.22/0.36	0.47	0.38/0.56	0.57	0.46/0.73
Soluble Aluminium (as Al) ..	0.36	0.06/0.72	0.86	0.58/1.45	0.76	0.45/1.06	0.41	0.22/0.86
Iron	0.22	0.10/0.45	0.15	0.05/0.26	0.23	0.17/0.36	0.05	0.05/0.06
Colour (Hazen Units)	6	5/15	5	<5/6	5	..	<5	<5/5

TABLE *C*

CLEAR WATER TANKS

AVERAGES OF MONTHLY COMPLETE ANALYSIS 1957

(PARTS PER MILLION)

Parts per Million	GUNONG PULAI		BUKIT TIMAH		WOODLEIGH		TEBRAU	
	CLEAR WATER TANK		PUMPING MAIN		PUMPING MAIN		CLEAR WATER TANK	
	Average	Range	Average	Range	Average	Range	Average	Range
Ammoniacal Nitrogen (as NH_3)	0.09	0.06/0.17	0.14	0.08/0.22	0.16	0.12/0.22	0.24	0.10/0.52
Albuminoid Nitrogen (as NH_3)	0.04	0.02/0.06	0.04	0.02/0.06	0.05	0.02/0.08	0.04	0.03/0.06
Nitrite Nitrogen (as Nitrogen)	a	..	t	a/t	a	..	a	..
Nitrate Nitrogen (as Nitrogen)	0.01	a/0.03	0.01	a/0.03	0.01	a/0.03	0.01	a/0.03
Carbon Dioxide	0.04	a/0.5	0.7	0.5/0.8	0.7	0.5/1.0	0.20	a/1.0
Total Alkalinity (as $CaCO_3$)	10.9	9.0/14.0	9.2	8.0/10.0	7.7	6.0/8.0	12.0	8.0/16.0
Free Chlorine	0.44	0.35/0.55	0.32	0.15/0.50	0.45	0.05/0.55	0.54	0.30/0.80
Iron	0.19	0.05/0.40	0.17	0.05/0.30	0.25	0.10/0.50	0.06	0.05/0.10
Soluble Aluminium (as Al)	0.37	a/1.00	0.83	0.30/1.50	0.83	0.45/1.20	0.3	0.10/0.80
Chlorides (as Cl)	6	6/7	6.4	6/7	6.4	6/8	6.2	6/7
pH	8.7	8.5/9.1	7.4	7.3/7.6	7.3	7.1/7.4	8.1	7.0/8.9
Oxygen absorbed from $KMnO_4$ soln. in 4 hrs. ..	0.68	0.4/1.10	0.58	0.30/0.85	0.58	0.40/0.80	0.52	0.20/0.75
Temporary Hardness (as $CaCO_3$)	10.9	9.0/14.0	9.2	8.0/10.0	7.7	6.0/8.0	12.0	8.0/16.0
Permanent Hardness (as $CaCO_3$)	8.4	a/16.0	19.2	16.0/23.0	19.7	16.0/23.5	7.4	4.0/15.0
Total Hardness (as $CaCO_3$)	19.2	9.0/30.0	28.4	26.0/32.0	27.4	24.0/30.5	19.4	13.5/28.0
Total Dissolved Solids	48.0	34.0/56.0	55.0	51.0/59.0	52.0	51.0/56.0	42	33/53
Suspended Solids	1.3	a/3.0	1.5	a/3.0	1	a/4.0	2	a/5
Colour (Hazen Units)	6	5/12	5	<5/5	5	<5/5	<5	..
B.O.D. in 3 days	0.37	0.15/0.65	0.31	0.15/0.55	0.33	0.15/0.65	0.21	0.15/0.25

TABLE *D*

FOOD AND DRUGS SAMPLES ADULTERATED OR OTHERWISE IRREGULAR

No.	Sample	Nature of Irregularity
24	Milk	Deficient in solids-not-fat.
5	Milk	Deficient in fat.
7	Milk	Deficient in solids-not-fat and fat.
2	Ice Cream	Contained saccharin.
1	Popsicle	Contained saccharin.
13	Coffee Powder	Not wholly coffee.
21	Coffee Mixture	Deficient in coffee.
1	Syrup	Contained saccharin.
1	Almond Syrup	Contained saccharin.
5	Barley Syrup	Contained saccharin.
1	Plum Syrup	Contained saccharin.
1	Blackcurrant Syrup ..	Deficient in stated ascorbic acid content.
1	"Ribena"	Deficient in stated ascorbic acid content.
2	Pepper Powder	Contained foreign starch.
2	Coriander Powder ..	Adulterated with ground rice.
1	Turmeric Powder	Adulterated with ground rice.
1	Tomato Catsup	Contained saccharin.
6	Soya Bean Sauce	Contained saccharin.
3	Vinegar	Artificial vinegar.
10	Vitamin B1 Tablets ..	Deficient in Vitamin B1.
2	Cajuput Oil	Failed to comply with B.P.C. tests for Cajuput Oil.
1	"Juputeh" Oil	Failed to comply with B.P.C. tests for Cajuput Oil.
2	"Cowlicin" Tonic Pills ..	Deficient in stated ingredients.
2	Indian Drug ("Kastoori Pills")	Contained excessive amounts of lead and arsenic.
1	Chinese Medicine ("Kiang Fong San")	Contained excessive amounts of lead and arsenic.
1	Chinese Medicine ("Bobo Tan")	Contained excessive amount of arsenic.
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BACTERIOLOGICAL DEPARTMENT

I HAVE THE HONOUR to submit the following report on the work of the Bacteriological Laboratory during the year 1957.

The total number of samples and specimens dealt with by the laboratory during the year amounted to 73,490. This is the largest total for any one single year up to date, and is a reflection of the ever-increasing volume of work that the laboratory handles. The annually growing figures also reflect the expansion of the various City Council departments which this laboratory serves in addition to service rendered to other external sources. For this I take pleasure in recording the dutiful co-operation of the staff in carrying out work meticulously well, and in ensuring that the laboratory remain open every day of the year.

The report is made up of the following sections:—

			1957	*1956*	*1955*
A.	Public Health Specimens:	..	56,482	52,040	43,138
B.	Water: 1. Routine: ..	..	12,878	13,331	13,221
	2. City Council Swimming Pools ..	..	3,633	2,494	2,501
	3. Miscellaneous	..	371	315	307
	4. Algæ and Others	..	91	67	111
C.	Sewerage: ..	..	35	36	35
	Grand Total	..	73,490	68,283	59,313

A. PUBLIC HEALTH SPECIMENS

The total number of specimens were 56,482 and were from the following sources:—

1.	City Health Department	12,851
2.	Infant Welfare Clinics	9,532
3.	Middleton Hospital	16,596
4.	St. Andrew's Mission Hospital	10
5.	Kwong Wai Siu Free Hospital	..
6.	Johore Water Works	182
7.	Private Medical Practitioners	4,373
8.	Rats from Plague Prevention Unit	6,229
9.	Ecto-parasites of Rats from Plague Prevention Unit	6,709
	Grand Total ..	56,482

Malaria.—2,237 blood films were examined for malarial parasites.

Number of positive for P. falciparum	1.
Number of positive for P. Vivax . ..	9.

Tuberculosis.—1,804 specimens were examined.

——	Positive	Negative	Total
Sputum	13	1,715	1,728
Urine	..	5	5
Pathological Exudate	..	3	3
Milk	..	68	68
Total	13	1,791	1,804
Enteric Fever:—			
Agglutination with Sal. typhi	83	584	667
Agglutination with paratyphi *A*.	1	315	316
Agglutination with paratyphi *B*.	13	303	316
Agglutination with paratyphi *C*.	6	310	316
Blood clot culture—Sal. typhi isolated	34	283	317
Fæces culture—Sal. typhi isolated	19	1,102	1,121
Urine culture—Sal. typhi isolated	5	1,095	1,100
Milk	..	20	20
Total	161	4,012	4,173
Agglutination with Vi I antigen	..	..	667
Grand Total	..	..	4,840

Tropical Typhus.—Blood for Weil Felix Reaction:—

Number of sera Positive for *B*. proteus OXK	0
Number of sera Positive for *B*. proteus OXW	1
Total number of sera investigated	578

Dysenteries

2,037 specimens of fæces were examined for Amœbæ.

Number of positives for *E*. histolitica 34

1,655 specimens of fæces were examined for B. dysenteries.

Number of positives for Shigella flexner	78
Number of positives for Shigella sonnei	63

9 specimens of Milk were examined for B. dysenteries.

Number of positive for Shigella sonnei 1

Comments.—With reference to the item concerning the isolation of B. dysenteriæ Sonnei from a specimen of milk, the following is an interesting account relating to it.

On 9th February, 1957, the City Health Department received a complaint from the Naval Medical Officer of Health, H.M. Dockyard, that the British Military Forces on the Island were perplexed at the occurrence of a series of dysentery cases among their personnel. Investigations carried out by the Medical Officer of Health revealed the possibility of contaminated milk supplies as the vehicle of infection. He requested our Health Department to look into the question of milk supplies in the City areas.

Accordingly, rigorous inspections were carried out in a well-known factory situated within the City in connection with the bottling of milk. The whole process ranging from the washing and sterilising of bottles, pasteurisation of milk, the final bottling, etc. were examined carefully. This examination exonerated the factory from blame.

Meanwhile, milk samples both of urban and Rural origin, obtainable from provision-shops, restaurants, public bars, etc. situated within the City limits were sent to this laboratory for bacteriological examinations. This systematic check eventually resulted in a spectacular success when a sample of pasteurised milk of rural origin, packed in a waxed paper carton and sold in a provision shop at Orchard Road was found to contain viable B. dys. Sonnei.

Following upon this, the Rural Health authorities were informed immediately, and an Assistant Health Officer from our department was detailed to examine in the company of Rural Health Officers, the pasteurisation plant and the factory from which the offending milk sample originated. The report as submitted by the Assistant Health Officer after the examination is quoted in parts for the sake of interest:—

> "The pasteurisation plant housed in a one-storey terrace shophouse consisted of the pasteuriser together with the charts and a cooling mechanism. The sole proprietor was also present to describe the various stages of the pasteurisation process. In short, the milk is heated to a temperature of 150°F. and maintained for 30 minutes at this temperature after which the milk is quickly pumped via a steel pipe into the cooling system. The treated milk flows over this cooling system and is exposed to the open atmosphere, the cooling system being open plates which enclose a piped system for cold water which maintains the plates at a temperature of about 50°F. The cooled milk therefore is about 50°F. and is collected at the bottom of this system in a trough which has an opening in the middle through which the milk is collected at the bottom in an open vat. The vat is then taken to a measuring system which is manually operated. By a turn of the measuring system a definite amount of milk is drawn by gravity into prepared paraffin wax boxes which are not sterilised at the factory before the filling process. The paraffin boxes are so made that there are creases on the top which will enable a worker to press it into a closed box so that in the closing of these boxes handling is again very prominent and the contact of fingers with the milk is a definite possibility. Once the box is closed a metal clip is taken by hand again and placed over the top. Then the clip is pressed on to the top of the box and a carton of milk results. By personal experiments it was found that this metal clip could be detached from the box and the milk contents could be exposed (this would mean that there is every possibility of unscrupulous people being able to adulterate the milk) and the milk contents examined and subsequently re-capped with the same metal clip without leaving any perceptible trace of the carton having been tampered with. Then again the workers are not provided with facilities to wash their hands in any disinfectant after a toilet. The water supply obtained is from our piped water system. There is a steriliser which apparently is quite good, but for this steriliser to be effective at all proper supervision is very essential, and I am assured by one of the Rural Health Officers, that he is quite satisfied that supervision is not satisfactory so that it is quite conceivable that occasions may arise where the workers may not utilise the steriliser. In so far as examination of the workers for typhoid dysenteric carriers is concerned, the proprietor was not certain as to whether or not the workers who are sent to a private doctor nearby are really examined properly in this respect.
>
> From the above account it would be seen that there is every likelihood of a dysenteric carrier contamination the milk supplies of the factory after pasteurisation, and the isolation of *B.* dys. Sonnei in a previous sample is quite consistent with the state of affairs as it existed at this shop factory.
>
> As a consequence of this inspection tour the Rural Health Officers have now started an intensive lookout into the means to prevent the contamination of the milk as far as it is possible. They have advised the management on the necessity of personal hygiene on the part of the workers and the provision of a disinfectant for the use of the workers after toilet. They have also made definite arrangements to have the workers examined at the Middleton Hospital for typhoid dysenteric carriers. The importance of the use of the steriliser for sterilising the utensils used for the pasteurisation of the milk, etc. has been stressed by the Rural Health Officers on the management. They have also taken samples of the milk both in this factory and outside in provision shops in the rural areas for bacteriological examination by the Government laboratory." (H.O. 334 Milk and Milk Products enclosure 52A).

It was subsequently established that the Military Authorities obtained part of their milk supplies from this factory. Evidently this investigation provided the correct indication in dealing with the source of infection. Since then no further reports on similar outbreaks of dysentery occurring among their personnel have been received from the British Military Authorities.

Plague.—No human specimens were received.

6,229 rats were dissected and none showed any signs of plague infection.

6,709 ecto-parasites were examined.

The species and distribution of all rats and ecto-parasites that were examined, are given in the table attached.

Cerebro-Spinal Fever.—No specimens were received.

Cholera.—No specimens were received.

Leprosy.—Skin smears:—

Total number of positives	8
Total number examined	45

Diphtheria.—Throat swabs for culture for C. diphtheriæ.

Positives	1,609
Negatives	10,369
Total No. examined ..	11,978

Comments.—In connection with these figures, there is an increase of over two thousand specimens this year as compared with last year's figures. This large increase is an indication of a corresponding increase in the incidence of diphtheria which has reached epidemic proportions.

The government School Health authorities since October of this year, have been requiring our laboratory to do culture and report on throat-swabs of school contacts of cases of diphtheria. Where a school child is affected by the disease, the four contacts, who sit around him or her are examined and swabbed by the health authorities, and the swabs sent to our laboratory. This additional work has also contributed to the increase in the number of specimens dealt with for the year. Out of a total of 520 such specimens, 14 were found to be positive for C. diphtheriæ.

Miscellaneous Examinations:—

Pathological exudates for General Examinations ..	13
Urine for General examination	3,025
Pus and Urine for Gonococci	478
Blood for Culture	5
•Blood for Kahn Test	4,954
Blood for T.R.C., T.W.C., and Differential Counts ..	1,009
Blood for Hæmoglobin percentage	130
Blood for B.S.R.	49
Blood for Micro filaria	5
Fæces for Intestinal parasites	10,886
Fæces for Occult Blood	2
Skin smears for Fungi	4
Sundried Humus	189
Disinfectants	5
Milk bottles and cartons for sterility tests ..	16
Milk	158
Ice Cream	252
Maggots	1
Oyster sauce for Salmonella group	1
Canned foods	5
Total ..	21,187

**Comments.*—After due consultation, this laboratory agreed to do routine Kahn tests for V.D. for all ante-natal cases from the Maternal and Infant Welfare Department with effect from June 1956. From June 1956 to December 1957, a total of 6,149 tests were done, and of these 204 were positive. This means that about 3 out of every 100 mothers were discovered to be suffering from syphilis. This is an important discovery from a preventive aspect, and the continuation of this scheme of routine tests is highly desirable.

B. WATER

1. *Routine*

16,511 routine samples of water from the City Water Engineer were tested bacteriologically.

Throughout the year the condition of the tap water remained satisfactory.

The following is a summary on the various samples examined:—

Source	Year's Average total colonies per m. l at. 37° C. in 24 hours	Year's Average presumptive coliform count per 100 m. l.
MacRitchie Res: Valve Tower	313	34
Peirce Res: Valve Tower	308	11
Seletar Res: Channel	259	16
Pontian Res: Valve Tower	356	50
Bukit Timah Res: Clear Water Tank	20	Less than 1
Woodleigh Res: Clear Water Tank	16	Nil.
Gunong Pulai Res: Clear Water Tank	21	Less than 1
Tebrau (Outlet) Clear Water Tank	15	2
Pontian Res: Camp supply	19	Less than 1
Pearl's Hill Res: Tank 1	35	Less than 1
Pearl's Hill Res: Tank 2	36	Less than 1
Pearl's Hill Res: Air Valve	20	Nil.
Fort Canning Res:	14	Less than 1
Taps—Bacteriological Laboratory	16	Nil.
Lorong Lalat Office	25	Less than 1
Havelock Road Office	47	Less than 1
Pasir Panjang Office	36	Less than 1
Dunearn Road Office	18	Nil.
Joo Chiat Road Office	22	Nil.
Average of 6 taps	27	Less than 1

2. *Swimming Pools*

(*a*) *Mount Emily:*—

Shallow End	8	Nil.
Centre Deep	9	Less than 1
Filter Outlet	10	Nil.

(*b*) *Yan Kit:*—

Shallow (Inlet)	35	Less than 1
Deep End (Practice Pool)	12	Less than 1
Main Pool (Inlet)	33	Less than 1
Main Pool (Outlet)	22	Less than 1

(*c*) *Farrer Park:*—

Shallow (Inlet)	18	Less than 1
Shallow (Outlet)	25	Less than 1
Main Pool (Inlet)	15	Nil.
Main Pool (Outlet)	16	Nil.

3. *Miscellaneous*

From:

Singapore Swimming Club	201
Tanglin Club	82
Chinese Swimming Club	51
Other Sources	37
Total	371

4. *Algæ*

Ninety-one samples of water were examined for algæ counts.

STAFF

Dr. K. Karunakaran, from the first day of his appointment on 4th November, 1956, as an assistant Bacteriologist was required to act as a full-time medical officer-in-charge of staff for about 2 months before he could report to the laboratory to assume his substantive duties. Shortly after this, he was required at various times to act as a full-time resident medical officer-in-charge of Middleton Hospital. For this year alone, he has been away for a total of 119 days doing full-time duty at Middleton Hospital and perforce not discharging his own substantive duties. It is understood that he will not be back at the laboratory until the end of next April. I wish to have this recorded as a very unsatisfactory arrangement for the laboratory.

Dr. Ling Ding Seng has been acting as City Bacteriologist, with effect from 1st October, 1956 to 26th April, 1957, and again with effect from 15th December, 1957, in the absence of the substantive holder of the post, Dr. Ng See Yook who was transferred to the Main Office for other duties.

Dr. LING DING SENG, M.B., B.S., D.P.H.,
Acting City Bacteriologist.

Table 1.

RATS AND FLEAS—SPECIES AND DISTRIBUTION, YEAR 1957.

Source	*R. Norvegicus*		*R. Rattus*		*R. Concolor*		*M. Musculus*		*Croci-dura*	Total Rats	Fleas *X* Cheo-pies	Fleas Others C. Felis	Total Fleas	Mites	Remarks
	M.	F.	M.	F.	M.	F.	M.	F.							
City Health ..	1,117	2,458	128	125	200	395	215	56	93	4,787	5,021	2	5,023	545	
Government Health	27	148	12	23	95	169	120	157	27	778	859	1	860	50	
S. H. B. ..	72	228	59	115	28	29	3	1	..	535	213	..	213	18	
Port Health ..	..	..	32	60	14	23	..	..	..	129	..	..	..	..	Fumigated H.C.N.
Total ..	1,216	2,834	231	323	337	616	338	214	120	6,229	6,093	3	6,096	613	
Grand Total ..	4,050		554		953		552		120	6,229	6,096	..	6,096	613	

As per Dy. City Health Officer's instructions, a total of 194 live rats were sent to D.A.D.A.H. HQ. Singapore Base District. These rats handed to D.A.D.A.H. were not included in the above totals.

MATERNAL AND INFANT WELFARE DEPARTMENT
ANNUAL REPORT 1957

THE MATERNAL INFANT Welfare Department continued to work at an increasing pressure in all aspects of its work.

In the Clinics, crowds continued to throng daily, seeking consultations on management problems, Ante Natal care and Family Planning, or treatment of minor ailments. During the influenza epidemic in May, the clinics were heavily overworked. Out of a total attendance of 25,870 in the 7 clinics in that month, 10,500 were influenza cases seen in babies, toddlers and mothers. Whole families came for treatment, and although some of them were in the age groups beyond those normally attended to, it was felt that we could not turn them away to add to the congestion in the Hospital Out-patient Departments, when with some effort on our part, we could help them. Many of the staff fell sick during this time, but many carried on although suffering themselves, because of the severe pressure on the Clinics. While treatment is not usually accepted as a function of the Maternal and Infant Welfare Clinics it was nevertheless considered necessary for us to give it to suit the exigencies of the local conditions. Minor ailments need to be treated in order that they do not become more serious, and by so doing, it was hoped to be able to win the confidence of the mothers sufficiently for them to accept our Health Education teaching. Over 60 per cent of infant consultations and over 22 per cent of the toddler attendances were for treatment, while the number of sick mothers treated in the clinics and in their own homes rose from 24,296 to 32,348. However, curative treatment was never given without advice being imparted also on preventive measures against illhealth, the rudiments of hygiene and mothercraft.

For a few months between July and October, there was a great shortage in our supplies of free powdered milk from Government. This somewhat affected our attendances during that time. Babies who had been thriving on weekly rations of powdered milk from us had some setback in their health, when the mothers fed them on other forms of milk unsuitable for infant consumption which was more within their reach economically than powdered milk.

The prevention of disease by vaccination and inoculation was stepped up. As from September, the 7 male vaccinators were put under the direct supervision of S.A.H.O. (M.I.W.D.). It was felt that a closer control was needed over their work in the clinics, and in home visiting of patients, whose vaccination was overdue, and this it was thought, could be achieved best by the Doctor and Sister in charge of the Clinics to which the vaccinator was attached, rather than from the more remote main office.

In a stepped up Anti-Diphtheria Immunisation campaign assisted by the Health Education Council, efforts were made to educate the public on the dangers of the disease, and the advisability of securing protection against it by immunisation. It was only partially successful in stirring the apathy of parents, until in October a sudden panic developed at publicity given to the increasing number of cases of diphtheria occurring. Since then the clinics have been packed out daily with unprecedented demands for inoculation from people of all ages. In November alone nearly 20,000 inoculations were given in the 7 Clinics. An immunisation service in Community Centres has been started by the Health Department, the Maternal and Infant Welfare Department lending staff and equipment at the outset till this service was properly established.

The Maternal and Infant Welfare Department also assisted Middleton Hospital by lending staff during June and October to tide over their staff shortages. This was in addition to the two Health Visitors who are attending in rotation, a six months fever training course, in order to qualify to cross the Efficiency Bar at $347.

In Home Visiting we had great difficulty in maintaining the work at full pressure, because the needs of the clinics had to be fulfilled first. Staff had many times to be diverted to assist in order to keep the clinics sufficiently staffed. With the increase in the number of births we were valiantly trying to cope with the Home Visiting using the same number of staff. In Home Visiting of infants, 64.36 per cent of the total number of births received a visit from the District Health Visitors before the first month after birth—in actual numbers 1,423 more visits than in the previous year; but it was not always possible to fulfill the usual minimum number of home visits during the first year of life, hence there was a drop of just over 1,000 in the number of revisits. In the Geylang area, home visiting was suspended for over one month, because gangsters had threatened and molested the Health Visitor visiting that area. Following the intervention of Councillor Mak Pak Shee, Home Visiting has now been resumed and no further incidents have been reported.

The Midwifery Service from our 16 City Council Midwives was as heavily taxed as ever. The department continued to assist Kandang Kerbau Hospital in giving Post Natal attention to mothers and babies discharged early from Kandang Kerbau Hospital after a normal delivery, the numbers of which were doubled, from 6,009 in the previous year to 12,597 in 1957. At times each Midwife had over 26 Post Natal cases a day to attend to in addition to those she herself delivered. As this was considered excessive, discussions were held with Medical Superintendent of Kandang Kerbau and the Matron, but the numbers referred continue to remain high due to the popularity of the free confinement service at Kandang Kerbau Hospital together with the early discharge, which has to be done in order that a rapid bed turn over can be secured.

Visitors from Abroad.—These included visitors from South Africa, U.S.A. and Australia. In August, 15 professors from South East Asia on an economic seminar were shown over some of our clinics and discussions on problems of this region were mutually enlightening.

Liaison with other Organisations

1. The Tamil Reform Association organised a Baby Show in January in which some of our staff were invited to act as judges. Some of the Health Visitors volunteered to help in weighing babies and recording data.
2. A Community Exhibition on Health Education Methods was held at the Victoria Memorial Hall in January, and the Maternal and Infant Welfare Department was able to assist in providing exhibits and putting up the displays, highlighting diphtheria immunisation.

3. Lectures and demonstrations to students were given as follows:—
    (*a*) University Medical Students—19/1 and 26/1.
    (*b*) D.P.H. Students—Visits to Clinics and discussion of problems on 7/2 and 14/2.
    (*c*) Social Studies students on 12/2 and provision of case material for social surveys.
    (*d*) Nurses Training School—19/3, 22/3 and 2/7.
    (*e*) Pupil Almoners were taken out Home Visiting by District Sisters—12/2, 29/5, 30/8 and 4/10.
4. A Psychiatric Clinic was held weekly in Joo Chiat Clinic from 11/1 with visiting staff from Woodbridge Hospital, but after 15/4 they moved to Kallang Out-door Dispensary.

Staff.—The volume of work could not have been achieved without the cooperation and team spirit of the staff. The Doctors worked under considerable strain, being 2 short throughout the year, as two were away, one following another for a study course at the University to obtain the Diploma of Public Health, and one or other away on earned vacation leave. Dr. Mah was successful in obtaining her Diploma of Public Health in June and after a short vacation in U.K. resumed duty in September, by which time Dr. N. Tan had proceeded on study leave to the University.

The Nurses who had gone to Australia on a Maternal and Child Welfare Course under the Colombo Plan returned in July. They were given very glowing reports on the course of their work by the Colombo Plan Officials.

Training in Service was the keynote throughout the year for the staff. Lectures to Health Visitors were begun in February in order to qualify them to sit for a Departmental Examination to cross the Bar at $411. A comprehensive syllabus was devised and the cooperation obtained of all the Doctors, both in the Maternal and Infant Welfare Department and the Health Department to lecture on Maternal and Child Welfare and Public Health problems. In addition, the Senior Sisters and those who have received training abroad in U.K. or Australia also gave lectures.

Unfortunately no Health Visitors were able to attend the Course for Public Health Nurses which began towards the later end of the year, as a sudden change in policy was decided too late to select any. It is to be hoped that we may be able to send some next year.

The Staff have shown every keenness to learn whenever the opportunity arose. The Government Health Education Officer kindly permitted some of our staff to attend a course organised for Rural Health Staff where they learnt how to prepare posters, models, flannelgraphs, etc. In addition weekly seminars were commenced among the Maternal and Infant Welfare Department Staff in order to see what form of visual aids they could devise to assist our teaching of mothercraft to our patients. At these seminars it was made patiently clear that there is a very great need for a trained Health Education Officer, as the gropings of untrained people, however willing and enthusiastic, were shown to be very much less productive and effective. Since the main scope of the work of the Department is advisory in nature, it is obvious that if those who have to advise are trained by a trained person not *what* to advise, but *how* to advise, and supported by visual aids in the form of models, posters, picture pamphlets, film strips etc., the result should achieve the desired effects better than the clumsy attempts of untrained personnel.

T.W.I. (Training Within Industry). Sister Brohier completed her training as a trainer and was able to hold 2 sessions with 2 batches of Sisters, imparting her newly acquired knowledge of Job Relations and Job Methods to them. Senior Assistant Health Officer also underwent 2 condensed "appreciation" courses in order to understand the value of what Sister Brohier had learnt and was teaching to the others. Application of these common sense methods of approach in dealing with people and in imparting instructions should be of great value in our work, where there has to be so much repetition in teaching mothers, who are sometimes rather difficult and slow of understanding.

B.C.G. 3 of the Senior Sisters have undergone refresher courses at Kandang Kerbau Hospital and Tan Tock Seng Hospital. They had had knowledge of the work previously when the U.N.I.C.E.F. team came out in 1951–52 and trained a number of the staff, but extra practice is considered very essential to give intrademal injections to newly born babies successfully. Negotiations with Government were made with the idea of instituting B.C.G. vaccination for the newborn delivered by private and City Council Midwives, following suit the policy instituted by Government to give B.C.G. vaccination to the newborn, in Kandang Kerbau Hospital and the Rural Maternal and Child Welfare.

Developments.—Alterations in Prinsep Street Clinic to provide accommodation for a Dental Officer were completed, but this service for Ante Natal mothers and toddlers will probably not start till next year.

Alterations in Joo Chiat Clinic to provide suitable accommodation for the 2 Midwives and clinic attendant were eventually completed.

Alterations and repairs to Kreta Ayer Clinic are being completed. It is a very old building and sadly required repairs and renovations.

It is very disappointing to report that the Urban Health Centre is still not ready for occupation.

It was accepted that there was a need for many more clinics to decentralise our work to make it more easily accessible for people, so that there would not be so much congestion and long waiting queues as in the present number of clinics. Plans for expansion at the rate of 1 new clinic every year were approved and $100,000 provided for in the budget to build. Unfortunately this could not be realised during the year due to difficulties in getting a suitable site in any of the 10 areas where it was thought clinics were needed.

Dr. MAGGIE LIM, M.R.C.S., L.R.C.P., D.P.H.,
Senior Assistant Health Officer,
Maternity and Infant Welfare.

ANNUAL REPORT OF MATERNAL AND INFANT WELFARE DEPARTMENT 1957

	1957	*1956*
I. *Total number of Confinements in City Area*	48,069	45,649
Nature of confinements:		
In Hospital	29,299	25,112
By Private Doctors	3,576	3,438
By Private Midwives	14,566	14,876
By City Council Midwives	1,305	1,371
With no skilled attention	628	852
Of these confinements:—		
Mothers visited by District Sisters within 10 days after confinement	18,237	18,763
Subsequent visits to Sick Mothers	3,172	3,457
Sick mothers treated in their homes by lady Assistant Health Officers	5,325	4,542
Maternal deaths in puerperium	8	9
Mothers removed and untraced	525	394
Total number of births in City Area	48,459	45,998
Number of twins	384	345
Number of triplets	3	2
Still Births	772	690
Number of new born babies seen by District Sisters	17,986	18,508
Babies born in Hospital	28,754	25,878
Babies untraced	527	384
II. *Free Midwifery Services from the Clinics*		
(*a*) Free confinements conducted by 16 City Council Midwives	1,305	1,371
(*b*) Number of cases referred from Kandang Kerbau Hospital for post natal domiciliary aftercare by City Council Midwives	12,597	6,009
(*c*) Abnormal cases referred to Kandang Kerbau Hospital	16	27
(*d*) Number of self attended deliveries followed up by City Council Midwives	116	164
(*e*) Total visits paid by City Council Midwives to patient's homes	41,965	26,844
III. *Visits paid by Health Visitors to homes*	92,030	91,758
1st visits following birth report	30,939	29,516
Subsequent visits	61,091	62,242
Percentage of Total Births visited by Health Visitors	64.36%	64.17%
Total number of Visits of Sisters and Health Visitors to homes	128,653	128,885

	1957		*1956*	
V. *Clinic Activities*				
A. INFANTS				
New infants first attendances at clinics	28,300		23,168	
Subsequent attendances of infants at clinics	185,460		157,705	
Total attendances	213,760		180,875	
Of these, attendances of Sick Babies were	134,693		115,300	
i.e. in percentage	63.01%		63.75%	
B. TODDLERS—1st visits	43,915		17,193	
Subsequent visits	38,489		13,105	
Total visits	82,404		30,298	
Of these, attendances of Sick Toddlers were	19,095		15,033	
i.e. in percentage	22.67%		49.62%	
C. SICK MOTHERS				
Number of Sick Mothers treated:—				
In Clinics	27,023		19,754	
On District	5,325		4,542	
Total	32,348		24,296	
D. ANTE NATAL CONSULTATIONS IN CLINICS				
Ante Natal mothers 1st attendances	5,278		4,952	
Subsequent attendances	14,078		13,329	
Total	19,356		18,281	
Ante Natal home visiting by 4 Health Visitors	8,724		9,346	
Kahn Blood tests taken	3,691		2,439	
Number positive	121		84	
i.e. in percentage	3.28%		3.44%	
E. FAMILY PLANNING				
Number of new cases advised	277		309	
Revisits: Number coming to check appliances	133	374	171	426
Revisits: Old cases	241		255	
Unsuitable cases and failures	6		4	
Cases referred to F.P.A. or Kandang Kerbau Hospital	740		958	
Total	1,397		1,697	
F. IMMUNISATION AGAINST DIPHTHERIA				
(*a*) *Under 1 year old*				
1st injections	9,073		8,978	
2nd injections (Number who completed the course)	8,549		8,186	
Total injections	17,622		17,164	

	1957		1956	
(*b*) *Over 1 year old*				
1st injections	23,944		13,818	
2nd injections (Number who completed the course)	20,748		10,790	
Total injections . .	44,692		24,608	
Visits to homes to follow up cases . .	5,696		5,561	
Febrile reactions	2,922		2,004	
Percentage of completed injections for infants and toddlers	44.85%		45.43%	
(*c*) *T.A.F. Injections* (*over 10 years*)				
1st injections	2,543		612	
2nd injections	2,084		463	
Total completed course . .	1,569		350	
Total . .	6,196		1,425	
(*d*) *Contact Cases*				
1st injections	1,698		509	
2nd injections	1,252		474	
Total . .	2,950		983	
(*e*) *Boosting Dose*	9,776		1,677	
G. IMMUNISATION AGAINST DIPHTHERIA AND WHOOPING COUGH				
1st injections	6,337		2,680	
2nd injections	5,679		2,202	
Total completed course . .	4,932		1,540	
Total . .	16,948		6,422	
Febrile reactions	2,753		787	
H. FREE MILK POWDER DISTRIBUTION				
Total number of babies given free milk . .	4,786		2,593	
Number of nursing mothers given free milk	942		996	
Number of re-issues	45,210		46,160	
Amount given to Salvation Army . .	1,200		1,200	
Amount given to Convent Orphanage . .	1,200		1,200	
Total number of lb. of Powdered Milk used	39,928		36,000	
V. *Supervision of Midwives in Private Practice by Supervisor of Midwives*				
(*a*) Number of inspections of Private Midwives' Bags in 3 major Clinics . .	1,540		1,772	
(*b*) District visits to check on Private Midwives work	2,342		2,182	
(*c*) Investigation of Puerperal Fever cases reported	90		60	
(*d*) Investigation of Tetanus Neonatorum cases reported	5		14	
VI. *Medical Examination of City Council Female Staff*				
(*a*) For fitness to join service, confirmation in service and to join City Council Provident Fund	234	489	188	338
(*b*) For treatment of ailments . .	255		150	

MIDDLETON HOSPITAL

I HAVE THE HONOUR to submit the Annual Report of the Middleton Hospital for the year 1957

Table below shows the number of admissions, discharges, deaths, etc., during the year.

Table I

Diseases	Remaining 1956	Admitted	Dis-charged	Died	Remaining 1957
Small-pox	..	..	..	..	..
Cholera	..	..	..	..	..
Plague	..	..	..	..	..
Chicken pox	22	1,039	1,047	1	13
Herpes Zoster	..	1	1	..	..
Measles	..	153	149	..	4
Rubella	1	36	37	..	..
Diphtheria	37	712	653	58	38
Diphtheria Carrier ..	2	256	252	..	6
Acute Anterior Poliomyelitis ..	24	52	51	5	20
Late effect of Poliomyelitis ..	1	..	1	..	..
Pulmonary Tuberculosis ..	..	4	4	..	..
Septicaemia	..	3	2	1	..
Meningitis Non-Meningococcal	..	1	1	..	..
Typhoid fever	8	118	113	2	11
Ascariasis	..	7	7	..	..
Ankylostomiasis	..	1	1	..	..
Malaria B. T.	..	1	1	..	..
Japanese B. Encephalitis ..	1	..	1	..	..
Acute Encephalitis and Myelitis	..	3	3	..	..
Vincents Angina	..	3	3	..	..
Mumps	..	14	14	..	..
Whooping Cough ..	2	30	30	2	..
Erysipelas	..	3	2	1	..
Scarlet fever	..	1	1	..	..
Amoebic Dysentery ..	5	197	194	6	2
Bacillary Dysentery ..	..	74	73	..	1
Clinical Dysentery ..	2	150	150	..	2
Other diseases, observations and carriers	5	803	796	8	4
Total ..	110	3,662	3,587	84	101

During the year, there were 3,662 admissions with 84 deaths, a mortality rate of 2.29 per cent.

DANGEROUS INFECTIOUS DISEASES

There were no cases of small-pox, cholera or plague.

DIPHTHERIA

Table II

DIPHTHERIA ADMISSIONS AND DEATHS FOR THE LAST 10 YEARS

Year	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
Admissions ..	184	220	222	370	427	332	345	460	552	712
Deaths ..	41	42	28	91	80	47	34	41	47	58

Table III

MONTHLY DIPHTHERIA ADMISSIONS AND DEATHS FOR THE YEAR

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Admissions ..	30	44	52	48	60	45	53	56	67	89	107	61	712
Deaths ..	3	6	4	2	8	7	5	4	2	8	5	4	58

It is evident from Table II that the number of admissions of diphtheria during this year is the highest since the last 10 years.

During the year 712 cases of diphtheria were admitted with 58 deaths, a case mortality rate of 8.14 per cent. 19 cases died within 24 hours after admission and 110 cases required tracheotomy operation of which 39 died. Nearly all the tracheotomies had to be done within the 1st or 2nd hour of admission which indicates the advanced stage of the illness reached before these cases were brought to hospital. Earlier admissions would have prevented many deaths from occurring.

From September 1957, there was an increase in the number of diphtheria cases admitted, the peak being reached in November 1957, with 107 admissions. 25 cases with definite history of diphtheria immunisation were admitted during the year of which 11 cases were carriers with positive throat swabs; in the remaining 14 cases, the attacks were mild.

In addition to the clinical cases, 256 contact diphtheria carriers with positive swab foı C. diphtheria were also admitted for isolation and treatment. In December, the epidemic appeared to be on the decline as only 61 cases were admitted for that month as against 107 in November. Owing to the increased incidence of diphtheria occurring in Singapore at present, the City Health Officer has extended the immunisation campaign by arranging for an Assistant Health Officer to carry out an immunisation programme in addition to that done at the City Council and Government Infant and Maternal Welfare Clinics.

Table IV

REGIONAL DISTRIBUTION OF DIPHTHERIA ADMISSIONS

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Urban ..	21	35	45	38	39	37	35	40	53	68	87	53	551
Rural ..	9	9	7	10	21	8	18	16	14	21	20	8	161

Table V

DIPHTHERIA ADMISSIONS AND DEATHS BY AGE AND SEX GROUP

Age group	ADMISSIONS		Total Admissions	DEATHS		Total Deaths
	M.	F.		M.	F.	
Under 1 year ..	24	27	51	7	3	10
1 year ..	37	30	67	6	7	13
2 years ..	61	49	110	5	9	14
3 years ..	53	40	93	2	4	6
4 years ..	48	25	73	4	1	5
5 years ..	25	21	46	..	2	2
6 — 10 years ..	91	82	173	4	4	8
11 — 14 years ..	19	36	55	..	..	..
15 — 19 years ..	7	15	22	..	..	..
20 + ...	6	16	22	..	..	..
Total ..	371	341	712	28	30	58

Table VI

DIPHTHERIA ADMISSIONS AND DEATHS BY ETHNIC GROUP

Nationality	ADMISSIONS		Total	DEATHS		Total
	M.	F.		M.	F.	
Europeans	1	..	1	..	..	..
Eurasians	2	1	3	..	..	..
Chinese	336	315	651	21	26	47
Indians	14	8	22	2	..	2
Malays	17	13	30	5	4	9
Others	1	4	5	..	..	..
Total ..	371	341	712	28	30	58

Table VII

DIPHTHERIA :—TYPE OF CASES AND DEATHS

Type	Admissions	Deaths
Laryngeal and Tracheal	188	52
Naso-pharyngeal	72	5
Faucial and Tonsillar	414	1
Nasal	34	..
Aural	2	..
Cutaneous	2	..
Total ..	712	58

Table VIII

DIPHTHERIA ADMISSIONS, DEATHS AND TRACHEOTOMY OPERATIONS

Total Admissions	712
Total Deaths	58
Case mortality rate	8.14%
Died within 24 hours after admission ..	19
Number of Tracheotomies done	110
Number of deaths after Tracheotomy ..	39

A number of cases suspected of diphtheria were admitted, but on investigation, they were diagnosed as follows:—

Acute Tonsillitis, Laryngitis and Naso-Pharyngitis 214 Stomatitis 4

Vincents' Angina 3.

ACUTE ANTERIOR POLIOMYELITIS

There were 52 admissions with 5 deaths. All the deaths were among Asian children below the age of 8 years except 1 girl of 11 years. 3 European adults and 3 European children were admitted, all of paralytic type. One case of Bulbo-spinal Polio with pharyngeal paralysis was treated by tracheotomy and intermittent positive pressure respiration, but the patient, a girl of 11 years died on the 16th day of admission. One case, a boy of 3 years old, died within 24 hours after admission due to respiratory failure.

BACTERIOLOGICAL RESULTS OF FÆCES FOR VIRUS

38 specimens of fæces were sent to the Department of Bacteriology, University of Malaya, for culture for Polio Virus. 14 specimens were negative and 24 positive. Results are as follows:—

Type I Polio Virus ..	8	Type III Polio Virus ..	9
"ECHO" Virus ..	3	Coxsackie Virus ..	3

Virus isolated, but not yet typed 1.

In two cases, both Chinese children, coxsackie virus was isolated from the stools and one European child, evacuated from Indonesia for treatment in Singapore, type I polio virus and coxsackie virus were isolated from the stool.

At present, the Department of Bacteriology, University of Malaya, is carrying out investigations of suspected polio cases admitted to this Hospital with a view to determining the part played by "ECHO" viruses in the causation of paralytic disease.

Table IX

ADMISSIONS AND DEATHS OF POLIO FOR THE LAST 10 YEARS

Year	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
Admissions ..	134	68	81	78	50	41	71	19	29	52
Deaths ..	18	2	10	8	8	5	2	2	..	5

Table X

REGIONAL DISTRIBUTION OF POLIO CASES DURING THE YEAR

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Urban ..	9	3	3	2	2	4	1	2	2	4	2	..	34
Rural ..	3	2	2	..	..	1	1	2	3	4	..	..	18

Table XI

POLIOMYELITIS ADMISSIONS AND DEATHS BY MONTH

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Admissions ..	12	5	5	2	2	5	2	4	5	8	2	..	52
Deaths ..	1	..	..	..	..	2	..	..	..	2	..	..	5

Table XII

AGE GROUP, ETHNIC GROUP AND SEX: POLIOMYELITIS ADMISSIONS

Age Group	EUROPEANS		EURASIANS		CHINESE		INDIANS		MALAYS		OTHERS		TOTAL	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Under 1 year ..	..	..	..	..	2	1	..	..	1	..	..	..	3	1
1 year ..	1	..	..	..	4	2	1	1	1	..	..	..	7	3
2 years ..	..	..	..	..	6	3	2	..	3	..	..	..	11	3
3 years ..	..	..	..	..	2	3	..	..	..	1	..	..	2	4
4 years ..	..	..	..	..	2	..	1	..	..	..	..	..	3	..
5 years ..	..	..	..	..	1	1	..	..	1	..	..	..	2	1
6–10 years ..	1	1	..	..	3	2	..	..	..	..	..	..	4	3
11–14 years ..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
15–19 years ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
20 + ..	2	1	..	..	..	..	1	..	..	..	..	..	3	1
Total ..	4	2	..	..	20	13	5	1	6	1	..	..	35	17

POLIO ADMISSIONS AND DEATHS BY ETHNIC GROUP

	Admissions	*Deaths*
Europeans	6	—
Chinese	33	5
Indians	6	..
Malays	7	..
Total ..	52	5

TYPHOID FEVER

118 Cases of Typhoid Fever were admitted with 2 deaths, one a Chinese male adult and the other a Malay boy of 4 years. Apart from 4 patients who belonged to the same household in Jalan Eunos and 3 patients from Blair Road, there was no concentration of the disease in any particular area. Out of 118 cases admitted, 35 were from the Rural Area.

A total of 347 persons employed by the ice-cream manufacturing firms and the Singapore Dairy farms were investigated for Typhoid Carrier State, but none was found to be a carrier.

Table XIII

TYPHOID FEVER: AGE GROUP, SEX AND ETHNIC GROUP
(Deaths in brackets)

Age	0–10		11–19		20 plus		Total	
Sex	M	F	M	F	M	F	M	F
Eurasians	..	..	2	..	..	2	2	3
Chinese	11	10	12	6	14(1)	18	37(1)	34
Indians	3	..	1	1	7	2	11	3
Malays	5 (1)	6	5	2	9	1	19(1)	9
Others	..	..	..	..	1	..	1	..
Total ..	19(1)	16	20	9	31(1)	23	70(2)	48

Table XIV

TYPHOID FEVER—ADMISSIONS AND DEATHS BY MONTH

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Admissions ..	11	19	18	8	4	10	6	3	5	11	11	12	118
Deaths ..	1	..	..	..	..	..	..	..	..	..	1	..	2

CHICKEN-POX

1,039 cases of chicken-pox were admitted during the year. One Chinese boy, 4 years old, died within 24 hours after admission as a result of developing encephalitis.

As in previous years more than 60 per cent of the admissions were Indians.

Table XV

CHICKEN-POX: AGE, SEX AND ETHNIC GROUP

Age	0–10		11–20		20 plus		Total		Grand Total
Sex	M	F	M	F	M	F	M	F	
Eurasians	4	..	1	2	3	3	8	5	13
Chinese	40	56	51	27	55	16	146	99	245
Indians	81	50	76	42	319	50	476	142	618
Malays	22	18	24	2	65	5	111	25	136
Others	4	1	5	4	12	1	21	6	27
Total ..	151	125	157	77	454	75	762	277	1,039

Table XVI

CHICKEN-POX:—REGIONAL DISTRIBUTION

Month	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Urban	95	95	153	115	66	28	22	42	37	56	71	57	837
Rural..	21	41	37	29	17	9	4	17	5	7	9	6	202
Total ..	116	136	190	144	83	37	26	59	42	63	80	63	1,039

MALARIA

One case of B.T. Malaria was admitted. The source of infection was probably outside Singapore, as the patient, a 16 year old boy, had fever 2 weeks after returning from Johore where he had been visiting relatives.

MEASLES

153 cases were admitted with no deaths.

WHOOPING COUGH

30 cases were admitted with 2 deaths. Both Chinese, one a female 3 years old and another a male 10 months old, died due to the complication of broncho-pneumonia.

ERYSIPELAS

3 cases were admitted with 1 death. A Chinese female patient transferred here from General Hospital died within 24 hours after admission.

Table XVII

DYSENTERY

TYPE OF DYSENTERY

		Admissions	*Deaths*
Amoebic Dysentery	..	197	6
Bacillary Dysentery	..	74	..
Clinical Dysentery	..	150	..
Total	..	411	6

Of the 197 cases of Amœbic Dysentery admitted, 6 cases died. One male Chinese, 65 years old, died within 24 hours after admission and one Malay female who was also suffering from advanced Pulmonary Tuberculosis (she was transferred from Mandalay Road Hospital) died 5 days after admission. The other 4 cases were: one Chinese female, 33 years old, one Chinese boy, 8 years old, one Malay boy, 5 years old and an Indian boy, 3½ years old. 27 cases were from the Rural Area.

Type of Bacillary Dysentery: Flexner 45, Sonne 27, Shiga 2.

GASTROENTERITIS AND COLITIS

53 cases were admitted with 4 deaths. 14 cases were children below 2 years old, of which 2 died. A Chinese female, 75 years old, died within 48 hours after admission.

Table XIX

OTHER DISEASES

Diseases	Remaining 1956	Admitted	Dis-charged	Died	Remaining 1957
Acute tonsillitis	3	198	200	..	1
Acute laryngitis	..	6	6	..	..
Acute Naso-pharyngitis ..	..	10	10	..	..
Influenza	..	18	18	..	..
Bronchitis	..	5	5	..	..
Broncho Pneumonia ..	..	8	5	3	..
Pneumonitis	..	1	1	..	..
Acute Sinusitis	..	1	1	..	..
Pyrexia of unknown origin ..	1	27	27	..	1
Rheumatic fever	..	1	1	..	..
Rheumatoid Arthritis ..	..	2	2	..	..
Stomatitis	..	4	4	..	..
Gastritis	..	1	1	..	..
Gastro-enteritis and Colitis ..	..	53	47	4	2
Appendicitis	..	1	1	..	..
Peritonitis	..	2	1	1	..
Neoplasm Intestine ..	..	1	1	..	..
Haemorrhoids	..	1	1	..	..
Anaemia	..	1	1	..	..
Amoebic hepatitis ..	..	2	2	..	..
Lambliasis	1	1	2	..	..
Moniliasis	..	1	1	..	..
Renal Calculus ..	..	1	1	..	..
Pyelitis	..	4	4	..	..
Cholecystitis	..	1	1	..	..
Post diphtheritic Paralysis ..	..	1	1	..	..
Radial Nerve Paralysis ..	..	1	1	..	..
Parkinsonism	..	1	1	..	..
Polyneuritis	..	1	1	..	..
Dermatitis	..	12	12	..	..
Septic ulcer	..	2	2	..	..
Adenitis	..	1	1	..	..
? Typhoid Carrier observations	..	347	347	..	..
Bacillary Dysentery Carrier ..	..	1	1	..	..
Observations	..	85	85	..	..
Total ..	5	803	796	8	4

Table XX

ADMISSIONS OF IMPORTANT DISEASES FOR THE LAST 10 YEARS

Diseases	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957
Small-pox	5	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..	..
Cholera	..	..	..	..	..	..	..	..	..	..
Chicken-pox	313	373	422	610	450	836	1,313	1,769	1,488	1,039
Measles	41	194	50	204	142	117	182	200	301	153
Rubella	5	6	1	11	9	..	1	..	86	36
Diphtheria	184	218	222	370	427	332	345	460	552	712
Cerebro-spinal Meningitis	7	4	4	4	2	4	2	..	..	..
Typhoid Fever	53	62	88	91	117	91	125	114	76	118
Acute Anterior Poliomyelitis	134	68	81	78	50	41	70	19	37	52
Erysipelas	15	15	12	4	3	..	3	..	2	3
Whooping Cough	6	8	27	5	3	..	10	5	85	30
Scarlet Fever	..	..	..	79	..	..	..	..	..	1
Mumps	30	3	14	..	15	9	35	54	52	14
Tropical Typhus	6	8	3	7	92	4	7	..	1	..
Amœbic Dysentery	65	106	90	105	22	134	122	136	126	197
Bacillary Dysentery	1	11	9	18	9	25	18	17	26	74
Clinical Dysentery	40	..	17	40	..	16	34	35	63	150
Other diseases, carriers and observations	893	602	731	591	455	440	647	503	936	1,083
Total ..	1,798	1,678	1,771	2,217	1,796	2,049	2,914	3,312	3,831	3,662

Table XXI

ETHNIC GROUP: NUMBER OF DAYS AND DEATHS IN HOSPITAL

Ethnic Group	REMAINING 1956		ADMITTED 1957		TOTAL		Deaths
	No. of Patients	No. of Days in Hospital	No. of Patients	No. of Days in Hospital	No. of Patients	No. of Days in Hospital	
Europeans	1	16	17	543	18	559	..
Eurasians	..	..	49	502	49	502	..
Chinese	66	2,875	2,136	30,664	2,202	33,539	66
Indians and Pakistanis ..	30	507	937	8,718	967	9,225	5
Malays	12	530	386	3,366	398	3,696	13
Javanese	..	..	52	299	52	299	..
Others	1	8	85	855	86	863	..
Total ..	110	3,736	3,662	44,947	3,772	48,683	84

Table XXII

Sex	Remaining 1956	Admitted 1957	Total Treated	Discharged	Transferred	Absconded	Died	Total	Remaining at end of 1957	Death Percentage	Average Daily Number of Patients	Number of Beds
Male	63	2,301	2,364	2,246	24	..	39	2,309	55	..	..	..
Female ..	47	1,361	1,408	1,298	19	..	45	1,362	46	..	..	..
Total ..	110	2,662	3,772	3,544	43	..	84	3,671	101	2.23%	126	250

HOSPITAL IMPROVEMENT

Reconstruction of an old ward (*H* Ward) for 30 beds was completed during the year and is now in use.

Alterations and repairs to *K* and *E* Wards were also completed.

STAFF

Matron R. M. Powell who was seconded as Matron to this Hospital from Government, resigned in April. Mrs. Louise Wong, Senior Sister, was appointed as Matron, Middleton Hospital, during the same month.

Senior Sister Tan Gek Kim resigned in October and the vacancy has not been filled on a permanent basis. Staff Nurse Grace Kee Soon Bee who went to Australia on 2 years Colombo Plan Scholarship in December 1956 shall be returning during the latter part of 1958. She has been promoted to Sister.

Dr. R. S. Corbitt acted as Medical Superintendent in place of Dr. Ng See Yook who was appointed as Acting Senior Assistant Health Officer from 14th June, 1957 to 25th November, 1957, and again from 15th December when Dr. Ng See Yook was appointed Acting Deputy Health Officer. The Resident Medical Officer, Dr. Leong Kwok Wah proceeded on 6 months long leave to England on 3rd September, 1957, and Dr. K. Karunakaran, Assistant Bacteriologist, was appointed to act as Resident Medical Officer in his absence.

ACKNOWLEDGMENTS

We are grateful to the following:—

1. Professor G. A. Ransome and Mr. R. D. Gunn as Consultants.
2. The blood transfusion service for their help by supplying blood for use in the hospital.

In conclusion, I wish to thank the Staff for their co-operation and loyalty.

R. S. CORBITT, M.B.B.S., D.P.H.,
Acting Medical Superintendent,
Middleton Hospital, Singapore.

22nd January, 1958.

CITY ABATTOIRS

I HAVE THE HONOUR to submit my report for the year ending 31st December, 1957.

During the year 500.119 animals were slaughtered in the City Abattoirs: 420.864 were swine, 4.004 oxen, 2,516 buffaloes, 26 horses, 69.073 sheep, and 3.636 goats.

252 swine, 9 oxen, 633 sheep and 18 goats died in pens.

71 swine died in the Depot.

63 swine, 19 oxen, 4 buffaloes, 50 sheep and 3 goats (all carcases) were totally condemned.

I have the honour to be,
Sir,
Your obeident servant,

J. L. da SILVA, CERT. R.S.I.,
Superintendent of Abattoirs.

———	Swine	Oxen	Buffaloes	Horses	Sheep	Goats
Admitted for slaughter, 1957 ..	421,072	4,042	2,503	26	69,812	3,668
Slaughtered 1957	420,864	4,004	2,516	26	69,073	3,636
Died in pens	252	9	..	..	633	18
Died in depot	71	..	..	..	..	..
Carcases condemned ..	63	19	4	..	50	3
Diseased organs, etc. condemned and destroyed in tons ..	11.76	3.6	4.16	..	8.08	0.05

TOTAL RECEIPTS FOR THE YEAR 1957

	$ c.
Fees for slaughter at Cattle Section	19,713 00
Fees for slaughter at Sheep Section	73,480 00
Fees for slaughter at Pig	842,144 00
Fees for storage at French Road Depot	10,229 60
Fees for inspection of wild boar carcases	94 00
Receipts for sale of blood and pigs' bristles ..	170 00
Receipts as pen rents (all slaughter houses) ..	30,034 60
Total Net Receipts for the year 1957 ..	975,865 20
Less refund of slaughter fees	1,176 00
Total Net Receipts for the year 1957 ..	974,689 20
Total Net Receipts for the year 1956 ..	992,332 25
Special slaughtering licences issued during the year 1957: 4 pigs @ $10 each, 25 sheep @ $5 each and 9 goats @ $5 each	210 00

ANIMALS SLAUGHTERED MONTHLY IN CITY ABATTOIRS DURING THE YEAR 1957

——	Swine	Oxen	Buffaloes	Horses	Sheep	Goats
January ..	39,786	203	435	..	5,546	321
February ..	32,454	226	315	5	5,914	232
March ..	36,902	362	249	1	6,767	290
April ..	35,591	385	229	1	7,316	286
May ..	34,696	257	217	..	4,935	246
June ..	32,900	326	136	.	5,221	271
July ..	34,533	447	87	4	5,964	274
August ..	35,607	390	87	3	4,723	303
September ..	32,781	343	157	..	5,159	242
October ..	34,015	356	122	4	6,025	286
November ..	34,668	365	189	3	5,783	259
December ..	36,931	344	293	5	5,720	626
Total slaughtered during 1957 ..	420,864	4,004	2,516	26	69,073	3,636
Total slaughtered during 1956 ..	431,373	3,057	3,437	9	64,636	2,918

CARCASES TOTALLY CONDEMNED DURING THE YEAR 1957

——	Swine	Oxen	Buffaloes	Sheep	Goats	Total
Bruising—Generalised ..	..	1	..	1	..	2
Cysticercosis (Measles) ..	12	..	..	..	..	12
Dropsy with Emaciation ..	..	..	1	2	3	6
Jaundice	9	4	..	10	..	23
Moribund	..	..	..	1	..	1
Mammitis—Septic ..	..	1	..	..	..	1
Metritis—Septic	3	..	..	..	..	3
Pyrexia	30	..	1	35	..	66
Peritonitis—Septic ..	4	..	..	..	..	4
Pneumonia—Gangrenous ..	1	..	..	..	..	1
Sarcosporidiosis	...	..	2	..	..	2
Septicaemia	3	5	..	1	..	9
Swine Fever	1	..	..	..	..	1
Tuberculosis—Generalised ..	..	8	..	..	..	8
Total Condemned during 1957	63	19	4	50	3	139
Total Condemned during 1956	55	37	7	92	1	192

REPORT FOR THE YEAR ENDING 31st DECEMBER, 1957

——	Swine	Oxen	Buffaloes	Horses	Sheep	Goats
Number slaughtered	420,864	4,004	2,516	26	69,073	3,636
Died in pens	252	9	..	..	633	18
Died in depot	71	..	..	..	..	..
Carcases condemned	63	19	4	..	50	3
Diseased organs, etc. condemned and destroyed in tons	11.76	3.6	4.16	..	8.08	0.05

CASES OF PARTIAL CONDEMNATION

——	Swine	Oxen	Buffaloes	Sheep	Goats
Abscess	15,111	12	2	222	..
Angiomatosis	..	3	1	..	..
Bruising/Fracture	3,067	78	8	130	2
Caseous Lymphadenitis	..	..	..	9,702	..
Cirrhosis	127	1	4	13	5
Congestion	13,834	5	1	7,982	2
Cysts	91	1	8	88	5
Dropsy	1	..	..	1	1
Fascioliasis	..	1,265	910	2	28
Fatty Infiltration	25	11	..	973	7
Foot Rot	..	2	..	2	..
Hydronephrosis	134	1	..	3	..
Inflammation	426	9	42	120	2
Maggots	4	3	1	72	2
Metritis	..	3	..	..	..
Mammitis	..	11	..	..	..
Melanosis	1	1	..	19	..
Necrosis	64	..	..	..	..
Nephritis	231	1	1	8	..
Onchocerciasis	..	67	..	..	..
Parasites	495	..	..	..	..
Pericarditis	32	..	..	2	..
Pleurisy	775	1	1	232	2
Pneumonia	581	1	1	35	5
Pregnancy	48	132	28	5	4
Sarcosporidiosis	..	2	1,339	..	..
Strongylosis	1	..	..	330	..
Tuberculosis	..	68	..	..	..

ITEMS OF INTEREST FOR THE YEAR 1957

1. There was a case of Swine Fever. This was reported to the Government Veterinary Officer.

2. *Revenue.*—The total revenue in 1957 was $974,689.20. This is nearly $17,643.05 less than the previous year's revenue which was $992,332.25 (the highest ever recorded). This shows a drop of 1.78 per cent.

J. L. da SILVA, CERT. R.S.I.,
Superintendent of Abattoirs.

PUBLIC HEALTH INSPECTORS SECTION

I HAVE THE HONOUR to submit my report on the works carried out by the Public Health Inspectorate during the year 1957.

STAFF

The former Chief Public Health Inspector, Mr. L. A. Marcus was appointed Superintendent, Markets and Hawkers Department as from 1st January, 1957. As a result of this appointment the vacant post of Chief Public Health Inspector was filled by the promotion of the Chief Food and Drugs Inspector, Mr. J. W. Bennett, who acted in the post until confirmed in February 1957.

The newly created post of Deputy Chief Public Health Inspector was filled on 1st February, 1957, by the promotion of Senior Public Health Inspector, Mr. Lee Kwong Soon, who was confirmed in the appointment in April 1957, on completion of a two-month trial period.

The two Divisional Public Health Inspectors, Messrs. A. N. Chatterji and C. V. Conceicao were on leave during the first quarter of the year perior to retirement on 9th April and 5th May, 1957, respectively.

In the absence of the substantive holders of the posts of Divisional Public Health Inspectors and Chief Food and Drugs Inspector, their respective duties were carried out by senior officers of the Public Health Inspectorate in accordance with the policy of the establishment Committee to give the senior Inspectors an opportunity to act in rotation in the higher graded posts. These posts were eventually permanently filled by Senior Public Health Inspectors as follows:—

(*a*) Mr. S. S. Ting as Chief Food and Drugs Inspector, w.e.f., 1st March, 1957;

(*b*) Mr. J. A. Then as Divisional Public Health Inspector (North), w.e.f., 9th April, 1957;

(*c*) Mr. E. C. Mathieu as Divisional Public Health Inspector (South), w.e.f., 5th May, 1957.

One Public Health Inspector, Mr. G. Newman, who was seconded to the Markets and Hawkers Department, continued to act as Senior Markets and Hawkers Inspector till 31st December, 1957. The Council eventually approved his appointment to this post permanently as from 1st January, 1958.

TRAINING OF STAFF

A significant feature of the Department's training activity during the year was the introduction of the "Training Within Industry" system of supervisory training organised by the Labour Department Singapore. A senior member of the Inspectorate, Mr. E. C. Mathieu, qualified as a Trainer of the "Three *J*" programme, i.e. Job Relations, Job Instruction and Job Methods of T.W.I. after attending an extensive six-week course sponsored by the Labour Department. This officer has since conducted classes in the Department for the benefit of supervisory personnel attached to the Inspectorate and the Clerical Staff.

Five Probationary Public Health Inspectors were granted study leave to attend the Royal Society of Health Course for the Health Inspector's Certificate. Three of these officers attended the local Royal Society of Health Course and were successful in the final examination held in November, one obtaining first position.

The remaining two Probationers were sent to New Zealand under Colombo Plan Scholarships. They are continuing with their course of studies and will be sitting for their final examination about the middle of 1958.

Two Probationary Public Health Inspectors attended a one-month training course at the "Outward Bound School" Lumut Perak.

A total of 11 Probationary Public Health Inspectors were engaged during the year. These officers are being seconded for necessary training in the Abattoirs and Anti-Mosquito Department.

The following is the Staff position as at 31st December, 1957:—

C.P.H.I.	D.C.P.H.I.	C.F.&D.I.	D.P.H.Is.	S.P.H.Is.	F.&D.Is.	Q.P.H.Is.	P.P.H.Is.	Total
1	1	1	2	4	2	23	19	53

SANITARY WORK

Kampong Inspection

Kampong Inspections were carried out in connection with:—

(*a*) Kampong Sanitation.

(*b*) Enforcement of the Swine By-laws.

(*c*) Checking new huts within the City Area.

(*d*) Checking new structures other than huts in dwelling houses within the City Area.

(*e*) Selection of sites for the erection of standpipes.

145 days were spent in respect of the above work during which period 2,582 premises were inspected.

Complaints

A total of 1,633 complaints were received from the public involving 21,521 visits.

Complaints	No. of Complaints	Primary Visits	Revisits	Total visits and revisits
Mosquito	806	8,349	9,471	21,521
Other	827	3,701		

Mosquito breeding was found in 2,657 premises.

Infectious Diseases

The following cases of infectious diseases were investigated.

Polio-myelitis	Diphtheria	Chicken-pox	Typhus	C.S.M.	Leprosy	Typhoid
41	576	980	1	..	88	85

In connection with the above, the following work was carried out.

Diphtheria Throat Swabs	Removal to Middleton Hospital	Barrier Spraying re Poliomyelitis	Total Visits
3,806	241	37	3,338

Notices

The following is a summary of notices served.

Type of Notice	B/f	Served	Total	Complied with	Cancelled	C/f
Intimations	44	766	810	635	39	136
Limewash	11	207	218	207	6	5
Nuisance Notice	28	70	98	65	4	29
Abatement Order	4	..	4	2	..	2
Prohibition Order	..	..	..	..	..	..
Well Notice	..	11	11	2	..	9
Total	87	1,054	1,141	911	49	181

FOOD AND DRUGS

A total of 1,238 samples were taken by the Public Health Staff for chemical analysis and examination in respect of infringements of the Sale of Food and Drugs Ordinance and Regulations. Out of this number 502 were taken by Public Health Inspectors and the remaining 736 by the Food and Drugs Inspectors. The former also submitted 242 samples for bacteriological examination. For details please see Appendix *I*, Table *A*.

Routine inspection of premises in connection with the sale of unsound and incorrectly labelled foods was carried out by the Food and Drugs Inspectors involving 6,636 visists. For Summary of foodstuff surrendered and destroyed please see Table *B* of Appendix *I*.

INSPECTION OF PREMISES

Inspections carried out on other classes of premises not included in the above, total 39,465 visits as follows:—

Sauce Factories	145
Oilmills	86
Sawmills	99
Places of Entertainment	419
City Markets	644
Private Markets	279
Coffee Grinding Mills	41
Printing Press	593
Licensed Premises	25,457
Public Houses	557
Labour Ordinance	5
Daily Fines	24
Serving Notices	1,233
Inspecting Notices	1,193
Cautioning Cases	183
Unlicensed Premises	1,099
Goldsmiths	20
Dry Cleaners	58
Hotels	45
Smoke Observations	3
Foundries	1
Other Premises	7,281
Total	39,465

In connection with the visits to:—

(*a*) Places of Entertainment;
(*b*) Printing Presses;
(*c*) Public Houses;
(*d*) Native Passenger Lodging House,

these inspections were made generally for the purpose of putting up recommendations with regard to the licensing, registration or renewal of licences under the control respectively of (1) Police Department (2) Chief Secretary (3) Customs Department (Board of Licensing Justices) (4) Criminal Investigation Department (Special Branch).

During the year, 210 plans were received from the City Architect and Building Surveyors Department, for comments generally with regard to the drainage, sanitary accommodation, working facilities and the siting of septic tanks including the discharge of the effluent. The number of inspections made in this connection are included under the heading of "Other Premises".

REPORTS TO OTHER DEPARTMENTS

A total of 567 reports were made to various departments in the City Council with regard to irregularities observed during the course of the Public Health Inspectors' rounds:—

City Cleansing Department	146
City Sewerage Department	110
City Building Department	124
Other Departments	187
Total	567

OFFENCES AND PROSECUTIONS

During the year a total of 483 summonses were applied for, in respect of various infringements of the Ordinances, By-laws and Regulations administered by the Department.

Out of a total of 304 prosecutions, 288 offenders were convicted, 7 withdrawn, 1 acquitted and 46 were postponed to next year.

The total fines amounted to $10,234. Court proceeding took up 135 man-working days.

MEAT INSPECTION

Throughout the year members of the Inspectorate were seconded to the City Abattoirs for various periods to provide relief for the Abattoir Staff on sick or vacation leave and to make up the full complement of Meat Inspectors involving no less than six Inspectors (3 qualified and 3 probationers) at one time.

Plague Prevention Section

Total number of rats caught in the City Area	4,787
Number of Fleas combed from the rats	5,023

None of the above rats were infected with plague.

Cemetery Section

Burial in Public Cemeteries	7,783 (257)
Burial in Private Cemeteries	544
Total	8,327 (257)
Exhumations	10,863

For number of burials by Race see Table *C*.
Figure in brackets denotes cremations.

As a result of an application made by Government the Council approved the setting aside of five acres of the Chinese Cemetery Reserve at Chua Chu Kang for the reinterment of approx. 10,000 corpses exhumed from a private burial ground (Loke Yah Teng) on Lot. 61–19 Mukim I at Tiong Bahru. A total of 2,350 urns containing the remains of exhumed corpses were interred in the Government reservation during the last two months of the year. This and other exhumations from various Cemeteries were supervised by the respective District Public Health Inspectors.

FOOD AND DRUGS SECTION

Labelling.—The officers attached to this Section did not only secure the elimination of scores of misleading names and descriptions of foods but has also achieved a fundamental change in labelling with the co-operation of the traders concerned. There has been a complete revolution in the labelling of pre-packed foods. The purchaser of such goods is now given an indication of their true nature in conformity with the provisions of the new Food and Drugs enactment which also gives further protection to the purchaser as to the quality of food he procures.

Arsenic on Fruits.—As a result of arsenic being found on apples imported from Japan towards the latter part of last year the taking of routine samples was continued but on examination by the City Analyst none were found to have a high arsenic content.

Further check samples of fresh fruits imported from various countries were also examined from time to time and found satisfactory.

During the year there were 12,816 man working days which were spent as follows:—

Sanitary Work	Abattoirs	Burial Grounds	Sick Leave	Infectious Diseases Duties	Vacation Leave
10,833	683	187	86	267	760

The total number of visits during the year covering all categories of work was 66,906.

GENERAL

Night Rounds

Throughout the year the Public Health Inspectors carried out special night rounds checking markets, licensed and unlicensed premises, amusement parks, etc.

World Health Organisation

The Public Health Section of the Department took part in the World Health Exhibition held at the Victoria Memorial Hall from 5th to 11th April, 1957.

A number of exhibits relating to meat and food inspection; proper handling and protection of foodstuffs, sampling, etc. were displayed at a stall alloted to the Department. Much credit is due to the officers responsible for the magnificent arrangement and display of the exhibits which took up a considerable amount of their time outside normal working hours. Throughout the period of the exhibition members of the Inspectorate were put on special duty at the stall to explain, offer advice and answer questions from members of the public in connection with the exhibits on display and generally on points relating to Food and Health.

Illegal Slaughter of Pigs

As a result of an appreciable drop in the number of pigs slaughtered at the City Pig Abattoirs, the Public Health Inspectors stepped up pork "raids" with the assistance of the police. Legal proceedings were instituted against all persons found in possession of illegally slaughtered pork. In cases where the vendors absconded the pork was seized and disposed of to charitable institutions as directed by the Court.

A total of 32 raids were carried out during the second half of the year involving seizure of 2,973¾ katties of pork. Court action was taken against 56 vendors and all the pork seized was kept in Cold Storage pending hearing of the cases. Up to the end of the year a total of 31 cases were heard and the fines imposed amounted to $2,017.50. The proceeds realised from the disposal of the seized pork were credited to the Municipal Fund on Court Order.

As a result of action taken there has been an appreciable increase in the number of pigs slaughtered at the Abattoirs. However, further action is being continued.

Health Education

Owing to the urgent need of carrying out organised Public Health Education by the Health Department a detailed Education programme on Food Hygiene was drawn up to include food handling training courses for all food handlers in restaurants, Ice-cream factories, food shops, etc. In this connection the City Bacteriologist gave a few talks and demonstrations to Ice-cream manufacturers.

In-Service Training

Courses for Health Sisters, Health Visitors and Maternity and Infant Welfare Medical Doctors in the form of Seminars or Study groups were conducted by a Public Health Inspector at the Alexandra Road Clinic, weekly.

The Seminar for each group comprises sixteen sessions.

Lectures on methods and technique of Health Education were also given to Student Health Visitors.

In addition an in-service training programme was arranged for all Public Health Inspectors.

It is intended to do much more Health Education work than is being done at present. However, this cannot be implemented unless there is an officer whose responsibility it will be to devote his full time to this work without other work suffering in consequence.

In December, however, the Health Committee directed that the Senior Public Health Inspectors should be seconded, in order of seniority, for a period of six months each, to do Health Education work and agreed that an additional Inspector be appointed as from 1st January, 1958.

IMPERSONATION OF PUBLIC HEALTH INSPECTORS

It has been reported that as a result of complaints lodged with the police, by members of the public, three arrests were effected in connection with impersonating Public Health Inspectors. All three accused were convicted and sentenced to various terms of imprisonment.

AMBULANCE DUTY

The removal of infectious disease cases by Public Health Inspectors was discontinued as from May 1957, on the appointment of two additional Hospital Assistants attached to the Middleton Hospital Staff.

DIPHTHERIA CAMPAIGN

With the increase of diphtheria cases, a health education and immunisation campaign was launched towards the end of the year.

A mobile team headed by the Assistant Health Officer, Dr. Ling Ding Seng has been conducting a door to door service, visiting various community centres, private institutions, etc. to immunise children, between the ages of 6 months to 12 years, against diphtheria. Letters and leaflets, on preventive measures against diphtheria printed in English, Chinese, Malay and Tamil were distributed to parents, community leaders and others. This work was carried out by Public Health Inspectors who were at the same time giving on the spot audience to parents with a view to having their children immunised either at the Maternity and Infant Welfare Clinics or by the Mobile Teams on appointment.

OTHER ITEMS

During the year, various members of the Inspectorate conducted lectures, field-demonstrations tours and civic classes for:—

(*a*) Diploma of Public Health candidates;

(*b*) Students attending the local Royal Society of Health Course for Public Health Inspector's Certificate;

(*c*) Probationary Public Health Inspectors, City Council;

(*d*) Medical Students, University of Malaya;

(*e*) Students of Forms III and IV Methodist Girls School;

(*f*) Observer from the World Health Organisation.

In conclusion I take pleasure in expressing my appreciation and thanks to all members of the Inspectorate, Cemeteries and Plague Prevention Section for their willing and helpful co-operation during the year.

I have the honour to be,
Sir,
Your obedient servant,

J. W. BENNETT, M.R.S.H.,
Chief Public Health Inspector.

27th February, 1958.

APPENDIX I

SAMPLES SUBMITTED FOR CHEMICAL ANALYSIS 1957

Milk and Milk Products:

Milk	275
Sweetened Condensed Milk	13
Unsweetened Condensed Milk	1
Evaporated Milk	6
Skimmed Milk Powder	19
Skimmed Sweetened Condensed Milk	4
Dried Milk	6
Filled Milk	1
Homogenised Milk	1
Butter	4
	330

Coffee, Coffee Mixture, Coffee Extracts, Tea and Cocoa:

Coffee Powder	44
Coffee Mixture	73
Coffee Extract	1
Tea Leaves	3
Tea Dust	1
	122

Fresh Fruits

Apples	76
Grapes	55
Pears	21
Plums	10
Oranges	1
Peaches	1
	164

Edible Fat and Oil

Groundnut oil	8
Coconut oil	1
Cooking oil	10
Vegetable Cooking Fat	1
Refine Cooking Oil	1
Lard	2
Beef Dripping	1
	24

Beverages:

Whisky	5
Brandy	6
Beer	5
Milk Stout	1
Apple Cider	1
Rum	1
	19

Carbonated and Non-carbonated Drinks:

Barley Syrup	5
Blum Syrup	1
Syrups	12
Aerated Water	185
Beanector	3
Mix soda water and Orange syrup	1
Beverage Base	2
	209

Drugs

B.P./B.P.C. Drugs	39
Vitamins	32
Proprietory Drugs	20
Chinese Drugs	28
Indians Drugs	2
Japanese Drugs	2
	123

Sauces

Soya Bean Sauce	21
Sauce Mixture	1
Chilly Sauce	3
Tomato Sauce	7
Fish Sauce	1
French Dressing Sauce	1
	34

APPENDIX I—*continued*

Vinegars:

Rice Vinegar	22
Artificial Vinegar	16
Chilly Vinegar	1
Malt Vinegar	3
Distilled White Vinegar	1
Wine Vinegar	1
	44

Canned Meat, Vegetable Fruits and Juices:

Canned Fruits	10
Canned Vegetables	18
Canned Meat	4
Canned Fruit and Veg. Juices	6
	38

Condiments:

Pepper Powder	13
Pepper Mixture	3
Chinese Star Aniseed	1
Ground Cloves	1
Ginger	1
Horse Radish	1
Chilly Powder	1
Coriander Powder	2
Tumeric Powder	2
	25

Colouring and Flavouring Matter:

Colouring Powder	2
Flavouring Essence	4
Flavouring Powder	2
	8

Miscellaneous:

Lacovo Malt	1
Ice-cream	33
Popsicles	30
Bean Curd	4
Cream Rice	1
Coffee Sweets	1
Lucozade	1
Ribena	2
Honey	3
Bread	3
Uncooked Pig Stomach	1
Epicuree	1
Well Water	4
Lollipops	2
Metal Toys	4
Dye Powder	1
Drain water	6
	98

SAMPLES TAKEN FOR BACTERIOLOGICAL EXAMINATION

Ice-cream	120
Popsicles	87
Milk	14
Well Water	2
Lollipops	4
Mixture	6
Ice-cream Mixture	7
Popsicle Mixture	2
Total	242

Table B

SUMMARY OF FOODSTUFFS SURRENDERED AND DESTROYED

Crates	Cases	Boxes/ Packages	Tins	Bottles/ Jars	FOOD BY WEIGHT	
					Katties	Pounds
..	104	47,316	..	..	..	549,257

DRUGS—ANTIBIOTICS—4,380 Packages.

Table C

BURIAL GROUNDS

1957	Burials and Cremations made in City Cemeteries and licensed burial grounds in City Area	Exhumations
Europeans	45	..
Eurasians	78	..
Chinese	*5,669 (4)	10,863
Malays	1,326	..
Indians	1,134 (250)	..
Others	†75 (3)	..
Total ..	8,327 (257)	10,863

* Includes 1,816 reburial of corpses. † Includes one burial of ashes.
Figures in ( ) denote cremations.

RETURN OF LICENCES ISSUED UNDER THE FOOD SHOP BY-LAWS.

DURING THE YEAR OF 1957.

Nature of Licence	Per Annum $	No. Issued	CASH RECEIVED	DETAILS OF LICENCES ISSUED												Re-issue
				For One Year	For One Month	For 2 Months	For 3 Months	For 4 Months	For 5 Months	For 6 Months	For 7 Months	For 8 Months	For 9 Months	For 10 Months	For 11 Months	
			$ c.													
Eating House	48	904	42,712 00	873	2	..	2	1	2	6	6	6	5	1	..	12
Restaurant	48	357	16,464 00	332	3	5	2	1	1	3	3	1	4	1	1	6
Coffee Shop	48	152	7,160 00	147	1	..	..	2	..	1	..	..	..	..	1	1
Iced Water and Cold Drinks ..	48	38	1,796 00	36	..	..	..	..	..	..	1	..	..	1	..	..
Soda Fountain	48	5	240 00	5	..	..	..	..	..	..	..	..	..	..	..	..
Meat Shop	48	104	4,956 00	102	..	..	..	..	..	..	1	1	..	..	..	1
Possession of Wild Boar Flesh ..	48	4	192 00	4	..	..	..	..	..	..	..	..	..	..	..	..
Milk Seller	12	18	216 00	18	..	..	..	..	..	..	..	..	..	..	..	..
Aerated Water Factory ..	48	11	528 00	11	..	..	..	..	..	..	..	..	..	..	..	..
Bakery	48	28	1,344 00	28	..	..	..	..	..	..	..	..	..	..	..	..
Biscuit Factory	48	6	260 00	5	..	..	..	..	1	..	..	..	..	..	..	..
Cake Shop	48	38	1,736 00	34	..	..	..	1	..	1	..	2	..	..	..	3
Ice Cream Factory	48	7	336 00	7	..	..	..	..	..	..	..	..	..	..	..	..
Ice Popsicle Manufactory ..	48	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Syrup Making Shop ..	48	5	224 00	4	..	..	..	..	..	..	..	1	..	..	..	..
Sweets Making Shop ..	48	10	480 00	10	..	..	..	..	..	..	..	..	..	..	..	..
Margarine Factory	48	2	96 00	2	..	..	..	..	..	..	..	..	..	..	..	..
Confectionery	48	1	36 00	..	..	..	..	..	..	..	..	..	1	..	..	..
Food Shop	48	28	1,344 00	28	..	..	..	..	..	..	..	..	..	..	..	.
Food Caterer	48	1	48 00	1	..	..	..	..	..	..	..	..	..	..	..	.
Dairy Shop	48	4	192 00	4	..	..	..	..	..	..	..	..	..	..	..	.
Ice Cream Distribution Centre ..	48	5	184 00	3	1	..	..	..	..	..	..	..	1	..	..	..
Soya Bean Milk Factory ..	48	1	48 00	1	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	1,729	80,592 00	1,655	7	5	4	5	4	11	11	11	11	3	2	23

RETURN OF LICENCES ISSUED UNDER THE OFFENSIVE TRADE BY-LAWS.

DURING THE YEAR 1957.

Nature of Licence	Per Annum	No. Issued	CASH RECEIVED	DETAILS OF LICENCES ISSUED												Re-issue
				For One Year	For One Month	For 2 Months	For 3 Months	For 4 Months	For 5 Months	For 6 Months	For 7 Months	For 8 Months	For 9 Months	For 10 Months	For 11 Months	
	$ c.		$ c.													
Private Market	600 00	8	5,400 00	8	..	..	..	..	..	..	..	..	..	..	..	..
Importation of Meat ..	..	15	6,770 68	15	..	..	..	..	..	..	..	..	..	..	..	..
Sick Receiving House ..	1 00	5	5 00	5	..	..	..	..	..	..	..	..	..	..	..	..
Charcoal Making	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Blachan Store	36 00	3	108 00	3	..	..	..	..	..	..	..	..	..	..	..	..
Brick Kiln	75 00	2	150 00	2	..	..	..	..	..	..	..	..	..	..	..	..
Coffee Roasting Factory ..	18 00	7	115 50	6	..	..	..	..	1	..	..	..	..	..	..	..
Dye House	18 00	5	90 00	5	..	..	..	..	..	..	..	..	..	..	..	..
Drying and Sorting Fish ..	54 00	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Fruit Preserving	75 00	2	150 00	2	..	..	..	..	..	..	..	..	..	..	..	..
Knacker's Yard	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lime Making	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lye Making	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Laundry	12 00	323	3,876 00	323	..	..	..	..	..	..	..	..	..	..	..	1
Oil Mill	18 00	16	252 00	13	..	..	2	..	..	1	..	..	..	..	..	1
Offal Boiling	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pottery Works	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rags and Bones Store ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Refining Precious Metals by the Acid Process	18 00	9	162 00	9	..	..	..	..	..	..	..	..	..	..	..	..
Sago Factory	75 00	3	225 00	3	..	..	..	..	..	..	..	..	..	..	..	..
Sauce Factory	18 00	18	324 00	18	..	..	..	..	..	..	..	..	..	..	..	..
Sauce Mxiture Factory ..	18 00	2	36 00	2	..	..	..	..	..	..	..	..	..	..	..	..
Sheep or Goat Pen	18 00	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Soap Boiling	18 00	6	108 00	6	..	..	..	..	..	..	..	..	..	..	..	..
Sugar Boiling	75 00	2	150 00	2	..	..	..	..	..	..	..	..	..	..	..	..
Tannery	75 00	3	225 00	3	..	..	..	..	..	..	..	..	..	..	..	..
Carried forward ..	1,222 00	429	18,147 18	425	..	..	2	..	1	1	..	..	..	..	..	2

RETURN OF LICENCES ISSUED UNDER THE OFFENSIVE TRADE BY-LAWS—*continued*

DURING THE YEAR 1957.

Nature of Licence	Per Annum	No. Issued	CASH RECEIVED	DETAILS OF LICENCES ISSUED												Re-issue
				For One Year	For One Month	For 2 Months	For 3 Months	For 4 Months	For 5 Months	For 6 Months	For 7 Months	For 8 Months	For 9 Months	For 10 Months	For 11 Months	
	$ c.		$ c.													
Brought forward ..	1,222 00	429	18,147 18	425	..	..	2	..	1	1	..	..	..	..	..	2
CATTLESHEDS, PONY-STABLES, COWSHEDS:																
9 Animals and Under per head @	1 50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10—14 Animals	15 00	1	15 00	1	..	..	..	..	..	..	..	..	..	..	..	..
15—24 Animals	22 50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
25—50 Animals	37 50	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Over 50 Animals	75 00	1	75 00	1	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	1,373 50	431	18,237 18	427	..	..	2	..	1	1	..	..	..	..	..	2

REPORT BY MEDICAL OFFICER IN-CHARGE STAFF REGARDING WORKING OF THE DISPENSARIES DURING 1957.

The following table shows the number of patients attended to at the different dispensaries and the number of days granted as sick leave to them.

—	City Hall Dispensary	Lorong Lalat Dispensary	Alexandra Road Dispensary	Middleton Hospital (attending to their Staff)	M. and I.W. Dept. (attending to female Staff)	Total
Total Attendances	34,411	50,762	30,334	679	384	116,570
Total Number of Sick days	35,377	51,507	20,266	747	619	108,516
Total Number of Sick days due to Tuberculosis	3,463	3,047	1,488	..	10	8,008
Total No. of Sick days due to Accidents while on duty	3,277	7,237	3,972	26	2	14,514

Details regarding employees visiting private practitioners and the number of sick days granted by them.

No. of cases 15,936 No. of sick days granted 42,170.

Altogether a total of 1,878 medical examinations were conducted to assess physical fitness prior to entry into service and/or the Municipal Provident Fund.

The Staff position in the dispensaries is as follows:—

Drs. K. V. Nair, K. M. Idicula, and D. Retnasabapathy having joined the dept. this year and Dr. A. C. S. Rajan having been transferred to this department from the Birth and Death Department and Dr. H. D. Jesudason having been transferred from this department to take the place of the former.

There are 11 Hospital Assistants, 5 clerks and 10 Attendants attached to this department.

The following are the chief causes of sickness in employees attending dispensaries.

Short Fevers 1,358 Diseases of Nervous System 5,613 Dental Diseases 1,028 Diabetes 500 Tuberculosis 83 Diseases of Respiratory System 15,901 Venereal disease 236 Disease of the Eye 1,509 Deficiency disease 1,978 Disease of the Skin 3,574 Eruptive fevers 173 Disease of E.N.T. and Mouth 3,292 Diseases of Cardio-Vascular system 560 Diseases of the digestive system 5,811 Diseases of Urogential System 790 Accident whilst on Duty 3,593 Accident whilst off Duty 7,236 Malaria Nil Other diseases 3,954.

During the influenza epidemic of the year hundreds of employees affected were attended to each day in all the three dispensaries.

PLAGUE PREVENTION

THE FOLLOWING IS A RETURN OF RATS CAUGHT FOR THE YEAR, 1957.

Source	R NORVEGICUS		R RATTUS		R CONCOLOR		M. MUSCULUS		Crocidura	Total Rats	Total Preg. Rats	Total Dead Rats	Fleas X. Cheopies	Fleas Others (Felts)	Total Fleas.	Mite	T LEWISI		Average Fleas per rat	Remarks
	M.	F.	M.	F.	M.	F.	M.	F.									+ve	– ve		
City Health . .	1,117	2,458	128	125	200	395	215	56	93	4,787	225	174	5,021	2	5,023	545	. .	. .	1.05	. .
Govt. Health . .	27	148	12	23	95	169	120	157	27	778	50	8	859	1	860	50	. .	. .	1.11	. .
S.H.B. . .	72	228	59	115	28	29	3	1	. .	535	41	. .	213	. .	213	18	. .	. .	0.4	. .
Port Health . .	. .	. .	32	60	14	23	. .	. .	. .	129	21	129	. .	. .	. .	. .	. .	. .	. .	Fumigated H.C.N.
Total . .	1,216	2,834	231	323	337	616	338	214	120	6,229	337	311	6,093	3	6,096	613	. .	. .	. .	. .
Grand Total . .	4,050		554		953		552		120	6,229	337	311	6,093	3	6,096	613	. .		. .	. .
Pregnant Rats . .		218		42		55		22			337									

All the Rats were dissected and none were found infected with Plague.
As per Deputy City Health Officer's instructions, a total of 194 live rats were sent to D.A.D.A.H. Headquarters Singapore Base District.
These rats handed to D.A.D.A.H. were not included in the above totals.

INFECTIOUS DISEASE NURSE'S REPORT FOR THE YEAR 1957

—	Malays		Chinese		Indian		Others		Total		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	T.
(1) *Home Visits*											
T.B. Patients First Visits	66	4	141	31	74	1	6	..	287	36	323
T.B. Revisits ..	146	5	262	60	162	..	9	..	579	65	644
T.B. Patients Untraceable	14	5	92	28	25	2	5	..	136	35	171
Deaths	..	..	8	..	2	..	..	..	10	..	10
Total ..	226	14	503	119	263	3	20	..	1,012	136	1,148
Home Visits											
Contacts First Visits ..	49	92	127	152	8	11	..	2	184	257	441
Contacts Revisits ..	28	35	84	64	11	4	..	..	123	103	226
Total ..	77	127	211	216	19	15	..	2	307	360	667
Details of Above											
Contacts Adults Referred to T.T.S.H. for X-Ray	4	51	11	51	1	9	..	2	16	113	129
Contacts Adults Referred to S.A.T.A. for X-Ray	3	2	21	23	..	..	..	..	24	25	49
School Children Referred to School Clinic ..	23	13	22	14	2	1	..	5	47	33	80
Total ..	30	66	54	88	3	10	..	7	87	171	258
Mantoux Tests Done											
Adults	..	..	..	..	..	..	..	..	..	..	..
Children	34	39	85	67	10	3	..	1	129	110	239
Total ..	34	39	85	67	10	3	..	1	129	110	239
Mantoux Tests Done											
Positive	7	10	39	27	2	..	..	..	48	37	85
Negative	21	27	45	35	9	4	..	..	75	66	141
Total ..	28	37	84	62	11	4	..	..	123	103	226

N.B.—There are no returns for the month of March, April, May, June and July, 1957 as the post of Infectious Disease Nurse was vacant. For the month of November and December, 1957 there were many days outings for the Anti-Diphtheria innoculations.

WELFARE DEPARTMENT

UNTIL 12TH MAY, 1957, the Labour Personnel and Welfare Office was under he control of one Head of Department entitled the Labour Personnel and Velfare Officer who was responsible for the administration of matters concerning Labour and Welfare. After that date the Departments were divorced nd put under separate Heads. The Welfare Department in accordance with he recommendation of the O. & M. Adviser was made a subsidiary of he Health Department. A Welfare Officer was appointed on contract in May 1957. It was later decided that the Welfare Department should work directly under the control of the Deputy President but that this office should continue to be located in the City Health Department—it being considered that this was the most appropriate administrative solution to the desirability of separating the functions of the Labour Personnel and Welfare Officer and yet maintaining co-ordination in inter-related matters through the office of the Deputy President.

The Staff of the Welfare Department consists of a Welfare Officer, two Assistant Welfare Officers and a Lady Assistant Welfare Officer with one Clerk and a Stenographer. The three Assistant Welfare Officers were all on leave at different periods during the year.

Its functions may be stated broadly as follows:—

(i) To assist labourers of the City Council by helping them with their day to day problems.

(ii) To investigate quarrels and complaints.

(iii) To settle payment of wages due to deceased employees by establishing *bona fide* claims by their next of kin.

(iv) To examine recommendations for payment of gratuities, compassionate allowances and similar allowances to daily rated employees and employees of the Subordinate Division and their dependants.

(v) To be present when an investigation is being made into the conduct of any daily rated employee or member of the Subordinate Division.

(vi) To deal generally with any other matters pertaining to the Welfare of employees.

(vii) To make recommendations through the Labourers Quarters Allocation Committee for the allotment of labourers and artisans type of quarters and to inspect these quarters from time to time to see that they are clean and well maintained. The Committee meets at least three times a week.

(viii) To assist with matters concerning daily rated employees and employees in the Subordinate Division who are in hospital.

(ix) To assist in obtaining deck passages for labourers who wish to go on leave to India.

In addition the Assistant Welfare Officer (Statistics) is responsible for taking charge of and inspecting the Telok Mata Ikan Holiday Bungalows and is Chairman of the Labourers Quarters Allocation Committee. He is also a member of the Canteen Committee.

The Welfare Office is frequented every afternoon by employees of the City Council and particularly by the South Indian workers who compose the majority of the labour force. Complaints are inquired into, squabbles settled, and advice and assistance given on a variety of problems. There is a very small percentage of Chinese and Malay cases.

It is part of the work of Welfare Officers to be present at inquiries into the conduct of certain classes of officers. They attend as observers and may also assist in interpretation to bring out clearly any points in favour of the employee who is under inquiry.

The Tamil speaking Assistant Welfare Officers are in frequent demand for interpretation as most of the cases concern Tamil labourers.

The Welfare Department took a part in helping certain Departments to organise Canteens for their employees. Progress was, however, slow and at the time of writing neither the Canteen proposd for the Thomson Road Electricity Department. Workshops nor that for the Stores and Workshops of the City Engineer's Department at River Valley Road has started to function. Papers have, however, been prepared for consideration by the appropriate Committees and if the proposals are approved the canteens should be operating early next year.

Passages to India

167 tickets were issued under the quota. Others were obtained from the Agents for emergency cases.

Disputes

During the year there have been approximately 330 disputes inquired into by officers of the Welfare Department. They may be classified as follows: —

Fights and Quarrels	86
Money matters	75
Domestic troubles	89
Drunkenness and causing a nuisance at L. Lines	28
Miscellaneous	52
Total ..	330

Whilst most of the cases were amicably settled, by reasoning with the parties concerned, some had to be referred to Heads of Departments and to the Labourers Quarters Allocation Committee for approval to transfer one or other of the rivals to other lines sites in the interests of peace.

Indebtedness

It is regretable that indebtedness is still rife especially amongst the lower paid clerical staff. Money lenders have been called up and in many cases have been induced to forego the interest charged and collect the principal sum involved in small instalments over a longer period than originally arranged.

One case was not without its amusing side. An open vote employee was indebted to an amount of $2,000 to a long list of creditors.Two of them were alleged to be Bengali watchmen employed by the City Council. On being called by the Welfare Officer questioned and warned of the consequences to City Council employees of engaging in moneylending the watchmen denied that they had ever lent money.

In the absence of any documentary proof to the contrary their denial was accepted. The open vote employee was informed in the presence of the watchmen that in view of their denial that he owed them money he was under no obligation to pay. If any pressure to pay was put upon him in future he should come again to the Welfare Office. Nothing more has been heard from either party.

In other cases where it was obvious that an officer was so heavily indebted that it was impossible for him to recover from his debts the facts were reported to the President or Deputy President of the City Council and permission for the officer to file a Petition in Bankruptcy obtained. There were between fifteen and twenty such cases. It seems certain that there are many more cases in which debts have not yet been disclosed.

Indebtedness is a serious problem which is difficult to tackle because of the officer's fear of punishment. It is thought that betting is one cause but it is certain that the main reason for insolvency is over-large families which must incur expenditure out of all proportion to income received by the bread-winner, especially when the chidren reach the age for schooling.

T. F. CAREY,
Welfare Officer.